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A

PRACTICAL TREATISE

ON

TROPICAL DYSENTERY,

MORE PARTICULARLY AS IT OCCURS IN THE

EAST INDIES;

Illustrated by Cases and Appearances on Dissection:

TO WHICH ARE ADDED,

PRACTICAL TREATISES

ON

SCORBUTIC DYSENTERY,

ON THE

MORBUS CHYLOPOIETICUS AND GASTRODYNIA A FAME;

WITH

SOME FACTS AND OBSERVATIONS

RELATIVE TO

SCURVY IN GENERAL,

AND A

SHORT ACCOUNT OF THE SCORBUTIC DISEASE THAT APPEARED AT THE PENITENTIARY, MILLBANK, WESTMINSTER.

THE SECOND EDITION.

By R. W. BAMPFIELD, Esq. Surgeon.

AUTHOR OF AN ESSAY ON HEMERALOPIA, OR NIGHT-BLINDNESS; FORMERLY SURGEON OF THE BELLIQUEUX AND WARRIOR, HIS MAJESTY'S SHIPS OF THE LINE, SERVING IN THE EAST AND WEST INDIES; AND NOW ONE OF THE SURGEONS TO THE ROYAL METROPOLITAN INFIRMARY FOR DISEASES OF CHILDREN.

Et primum de dysenteria loquemur, horribili isto, ac consuetissimo his regionibus malo, quod plures hic homines neeat, quam affectus quispiam alius præter naturam.---*Bontius, de Medicina Indorum, Cap.* III.

Neque addicta alterutri opinioni, neque ab utraque nimium abhorrentia.---*Celsus.*

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TO

THE RIGHT HONORABLE

GEORGE BYNG,

VISCOUNT TORRINGTON, AND A BARONET,

Rear Admiral of the Red, D.C.L. &c. &c.

As a tribute of respect, due to the benevolence, zeal, and ability, which your Lordship displayed, in your earnest efforts to preserve the lives of those confided to your command, and in your judicious, and, at last, eminently successful arrangements, to prevent the scorbutic form of disease treated of in this volume from prevailing among them; as a sense of obligation for the condescension and humane feeling with which you received and adopted every suggestion for their welfare; and as a grateful offering, for some personal acts of friendship conferred, during ten years associated services; the following Treatises are respectfully inscribed, and appropriately dedicated, by

His obliged, humble servant,

The AUTHOR.

37, *Bedford Street, Covent Garden,*
Sept. 30th, 1823.

PREFACE.

THE *motives*, that roused the Author to undertake an investigation of the formidable and destructive diseases treated of in the following pages, were to avert a miserable dissolution from those entrusted to his charge; to protect them from these scourges of our fleets and armies, by acquiring a more successful practice; and to relieve the mental anxieties their mortality occasioned.

He tried the practice of the learned lecturers and authors on tropical dysentery, more especially of the East Indies, which was the principal theatre of his professional experience; yet, while every other acute disease of intertropical regions submitted to the control of a decisive practice and unwearied attention, this alone too often defied his knowledge, baffled his skill, eluded his vigilance, mocked his hopes, and either quickly precipitated his patients to the grave, or consigned them to chronic disease replete with suffering and danger. Still his faith clung to the belief, that dysentery was one of those acute diseases whose desolating influence could be bounded, and fatal career arrested by the healing art, and that its

mortal ravages arose more from an ignorance of a succesful practice, than from its incontroulably fatal nature; and while he availed himself of the advantages that past experience of the remedies employed conferred, it seemed a laudable resolution to endeavour to establish a treatment, founded on such inferences, as should be fairly deduced from a mature consideration of all the symptoms and appearances on dissection, and should be sanctioned by sound principles of pathology and physiology.

The *means of information* were ample; for the prevalence of this disease among 500 Europeans of all ages under his medical care, during several years, daily presented to observation both its acute and chronic forms, and he enjoyed easy access to the hospitals at the Presidencies of India. The symptoms and treatment of every case were minutely and faithfully recorded twice a day, and of the interesting ones oftener, while the importance of dissections was never forgotten or omitted, when opportunities offered, which, happily, at last became very rare: from those cases, and their results the general observations have arisen, the deductions have been drawn, and the practical treatment inculcated; and if they vary from other authors, the difference has not grown out of an unbecoming spirit of cavil, but has arisen from the force of circumstances, a respect to truth, a candid avowal of opinion, and a deference to conclusions from facts.—What he has seen and believes, that he has boldly advanced, and faithfully recorded.

The characteristic symptoms of the order of phlegmasiæ are so clear and plain, their application to the detection of visceral inflammation is so easy and gratifying, and their treatment so rational and successful; that although he could not at once break the fetters that fastened on him the errors of authoritative doctrines, nor dissipate the mist of medical prejudice that obscured the bright clime of India, nor divest himself of the deference paid to the old and confirmed usages of its practitioners; still the symptoms and events of cases soon convinced, as far as reasoning and reflection, without demonstration, could impress conviction, that the dangerous symptoms and fatal terminations of idiopathic dysentery were those of inflammation, which could not be subdued and averted without the aid of bleeding.

An extended and prudent use of general and topical bleeding, associated with purgatives, sudorifics and mercurials, obtained such happy success, that the Author and his assistant ceased to dread the combat with this once alarming and fearful malady; and even the insidiously concealed or openly marked hepatic derangement, its occasional associate, was forced to yield to a persevering use of mercury, until salivation was moderately excited, in those cases that resisted its more limitted administration.

The great and almost invariable success of his matured and improved practice, compared with the results of his early mode of treatment, is the principal

pretension for presuming its communication will be useful to the tropical practitioner, and beneficial to his fellow creatures ; should it prove so, then will his labour not be in vain.

The manuscripts have not received any large accession of facts, since the Author's arrival from the East Indies, in the autumn of 1811, at which time he was prevented from publishing them, by being directly recalled into public service, by ill health, and from a hope of enlarging his sphere of observation and field of experience, which, indeed, occurred in 1814, when he was sent to the West Indies, the only intertropical part of the world he had not visited.

The Treatise on scorbutic dysentery must depend on its intrinsic merits for the favorable opinion of the public, as there is not any other extant, known to the author, by which it may be judged of by comparison.

When the first part of this volume was printed off, a friend kindly directed the Author's attention to the energetic observations of Dr. A. Robertson, on the New Orleans Dysentery,* and the publisher was so obliging as to send, as soon as it was printed, Dr. Ballingall's "Practical Observations on the East India Dysentery," &c. Dr. Ballingall concurs in a statement advanced in this work, which receives strong

* See Dr. J. Johnson's 2d edition of "The Influence of Tropical Climates, &c." *p* 425, *et seq.*

proofs from his table of dissections, that hepatic inflammation and dysentery are not so frequently co-existent in India, as has been commonly stated and believed.* Of thirty-five dissections described in his valuable table, four only disclosed hepatic abscess, and in these, death cannot be so rationally attributed to this cause, as to the diseased state of the canal, for in Campbell's, Christian's, and Foran's cases, "the intestine was *mortified;*" and, in Donaldson's, "the colon appeared *livid*, externally," and displayed "extensive ulcerations." Of twenty-five cases he has recorded, genuine symptoms of hepatitis, during life, were evident in only two.—In the Author's practice, the co-existence of hepatitis with the inflammatory form of dysentery occurred in about one case in ten; with the severe variety much less frequently; in the mild variety not at all; and he has seen the liver perfectly sound, where its disease had been predicted by several, before death, to be the cause of the fatal symptoms. Cystitis, peritonitis, and inflammation of the omentum, were associated with dysentery less frequently than hepatitis, and it is but rarely that any other structural derangement of the liver has been disclosed, sufficient to produce death, except what is occasioned by its inflammation. Dr. R's dissections, at New Orleans, exposed "no morbid intestinal appearances sufficient to account for death," which was generally caused by hepatic abscess, "without pain being felt in the right hypochondrium throughout

* P. 56-7 of Dr. B's Observations, and p. 26, 27, of this Treatise.

the disease, either on inspiration, or strong pressure under the false ribs."* These peculiarities, it is apprehended, cannot be very satisfactorily explained: but it may be observed of the climate of New Orleans, at the winter period, when this disease prevailed, that the thermometer fell 6 or 7 degrees below the freezing point at night, and rose no higher during the day "than to 30 or 38 degrees, and seldom above 50," and it consequently resembled the *frigid*, rather than the *torrid, zone*, and could hardly be said to present cases of tropical dysentery. It may be further remarked, that the men sustained a transition in about 15 days from Jamaica to a climate, "where the weather was cold and rainy, with frequent sharp frosts,"† and that a suppression of the cuticular discharges (so recently overflowing at Jamaica,) from exposure to "extremely cold" weather, might more generally and frequently excite inflammation of two of the abdominal viscera at once, than is commonly observed in the Tropics; as in this year (1818,) in England, visceral inflammations have been more severe and frequent after the very hot summer.

It is to be regretted that Dr. Ballingall "should have been restrained from using the lancet in some cases even in his Appendix, from either of the "two circumstances" he mentions; "a deference to the opinion of the older practitioners," or from a visionary notion, (the author has endeavoured to combat in

* P. 438 of Dr. J's work already quoted. † Ditto, p. 427.

his section on bleeding, and hopes to see banished to its airy habitation,) that the constitutions of the older residents in India and the Tropics will not bear bleeding; a consideration, which, with much estimable candour and love of truth, Dr. R. informs the author, deterred him from bleeding in some of his fatal cases *then*, but would not *in future*; as he considers "the danger of exhaustion from depletion would be less than the direct danger of the disease," and which experience and reason have long since taught the author to disregard; for he employed it as successfully among the old residents of twenty years, with proper caution, as among the newly arrived, and in the last years of his residence in the Tropics more than the first, from having learnt, by experience, to appreciate its value: and had Dr. Ballingall asserted the dignity of reason, and adopted "a practice of which he expresses a very favorable opinion," the author feels convinced he would not "have dissected 100 subjects dead from this disease and witnessed many more."* Indeed, when convinced of the inflammatory nature of one form of dysentery, in the Tropics, which no other author had clearly pointed out, and of its fatal tendency to speedy suppuration and mortification, reflection taught him thus to reason;—if a human being be assailed by acute and active inflammation

* See p. 58 and 67 of Dr. Ballingall's work already quoted—Drummond's, Davis's, and Foran's cases in the Appendix, in which the symptoms seem to indicate existing phlogosis and consequently bleeding.

of an internal organ—whether he be shaking on the icy shores of Greenland, or burning beneath the Æquinox—whether he be a white or an Æthiopian —young or old, male or female, of a firm tone or relaxed, in the hot or cold season—what do these considerations avail? Is there any remedy so indispensibly efficacious in its subduction as bleeding? Is there one so uniformly stamped with the venerable sanction of the wisest physicians of all ages and climates; that is inculcated by every author, respectable for learning and accurate observation; and to which the medical world is so much indebted, for being the providential instruments of saving life? The answer must be—certainly not; and if a human being, whatever or wherever he be, should be so affected, let it be an axiom, that, under a judicious modification, he will endure bleeding for its cure.

The work is committed to a candid and enlightened public, with an assurance, that cases were annexed in the manuscript illustrative of every opinion and observation offered; to sustain every practical statement made and deduction drawn; and to confirm every fact; the subjects of which would have been mentioned, had the author not been dissuaded from it, as being unnecessary, by his respected friend Mr. A. Copland Hutchison, whose zeal for the advancement of professional knowledge is only equalled by the benevolence and judgment, with which he exercises his profession.

PREFACE

TO

THE SECOND EDITION.

SINCE the first edition of this work was printed, the Author has received very flattering testimonies in its favor, in professional communications from the East Indies, China, St. Helena, and the Cape of Good Hope; the respectable and learned Commissioners of the Medical Departments of the Army and Navy have expressed their approbation of it, and the different reviewers have not been wanting in their warm commendations, nor have some, who disinterestedly promote the medical literature of hot climates.

Since the Author awakened the attention of the profession to the scorbutic form of dysentery, he has derived the imperishable consolation of being assured by several, that he has been the means of saving the lives of many valuable and suffering fellow creatures, by the diagnosis he has drawn between the symptoms of idiopathic and scorbutic dysentery, and the important distinction he has pointed out and established in the method of treatment. At no place, have the advantages been more conspicuous than at St. Helena, where half of the dysenteric patients landed used to

perish, before the scorbutic form of disease became known, and its appropriate treatment adopted, which has rendered a fatal issue comparatively rare.

To the ready access the author has been allowed to public documents, which have thus been made subservient to the investigation of disease, and to the facilities he has been afforded in their examination, he owes the satisfaction of observing, that a great many of his inferences, facts, and statements have been confirmed by the experience of others, whilst he has not as yet met with any opposed to them. For those facilities, and for much urbanity and condescension of manners, he feels indebted to Drs. Weir and Burnett, the Medical Commissioners of the Navy, who display great zeal in promoting the cultivation of medical knowledge, and in diffusing a love of science among the medical officers over whom they preside, which cannot fail to produce great public good.

The additions to the present edition are, a short account of the Scorbutic Disease that prevailed at the Penitentiary, a practical Treatise on the Torpor of the Digestive and Secretory Functions of the Digestive Organs, and on a singular Affection of the Stomach, arising from fasting, which are submitted to the candour of a liberal and favouring public.

37, Bedford Street, Covent Garden,
30th September, 1823.

OF

TROPICAL DYSENTERY.

Porro norunt expertissimi, ad recté medendum, omnino opus esse, ut remedia, non solum generi sed speciei cuique, et sæpe etiam varietatibus quibusdam, apprimè sint accommodata.—*Preface to Cullen's Nosology.*

CHAPTER I.

Section I.—*On the Nosology of the Disease.*

THE generic character of Dr. Cullen, and his subdivision of dysentery into species and varieties, are not applicable to the disease as it occurs in the East Indies and the Tropics: for "contagious pyrexia"* does not there form a *characteristic symptom;* he does not describe chronic dysentery, either as a species, or a sequela to the acute stage; and the varieties of tropical dysentery and its sequela, that actually occur in practice, distinctly differ in symptoms and character from those, which he and other nosologists have noticed and described.

It is thought, that scorbutic dysentery, enrolled by Dr. Cullen among the synonyma of symptomatic dysentery, as

* See Dr. Cullen's definition of this genus.

the 18th species of Sauvages, would more properly appertain to the genus scorbutus, and be thus classed according to its proximate cause and its mode of treatment.

I shall then describe the species and varieties, which I have observed in tropical dysentery.

Species 1ma.—*Dysenteria acuta.—Character.*—While the fæces are commonly retained, frequent evacuations from the intestines, consisting of mucus, serum, or blood, or a mixture of these, take place, and are preceded and attended by pain in some part of the abdomen, and accompanied and followed by tenesmus: pyrexia is not often evident, but is sometimes urgent.

It varies in degree.—(A)—*Dysenteria mitis.*—In which the stools are not frequent; the quantity of mucus or serum evacuated is small, and rarely tinged with blood; there is not any fever present; and the pain of the abdomen is never constant, and is only felt, together with tenesmus, about the periods of evacuation.

(B.)—*Dysenteria severa.*—In which, the stools are frequent, and recur from twelve to forty-eight times or even oftener in twenty-four hours; the excretions of mucus, or serum, and the discharges of blood, or a mixture of these three, are copious; the tenesmus and tormina about the periods of evacuation are severely felt; but there is no *constant*, fixed, and acute pain in any part of the abdomen, or unequivocal synocha.

(C.)—*Dysenteria inflammatoria.*—In which, there is a constant, fixed, acute pain of some part of the abdomen or

intestinal canal, including the parts contained in the pelvis; uncquivocal inflammatory fever;* obstinate retention of fæces, while there are very frequent and copious dejections of mucus, serum, or blood, or a mixture of these, together with severe tormina and tenesmus. The blood drawn and concreted, exhibits the inflammatory buff.

Species 2da.—*Dysenteria chronica.*—The acute is frequently succeeded by chronic dysentery, as a sequela of the varieties B. and C. In chronic dysentery, the fæces are not retained; but frequent, loose, fæcal stools, (a state which for brevity I shall term Diarrhœa) ensue, mixed with dysenteric excretions, and accompanied with tenesmus and tormina.

Acute dysentery is sometimes followed by diarrhœa, uncombined with dysenteric excretions, that will be noticed, when we come to the treatment.

Variety (A.)—In which, diarrhœa is accompanied with an uniform continuance or a frequent recurrence of dysenteric excretions, and of intestinal pains at the periods of evacuation.

(B.)—In which, the dysenteric excretions of the intestines are continued and often evacuated, while the bowels observe regular periods of discharging fæces of natural consistence and color, the same as in health.

* Synocha or inflammatory fever is thus defined by Dr. W. Cullen. —"Heat much increased, pulse frequent, strong and hard; urine high-coloured, the animal functions but little disturbed."—Nosology, genus iv.—In the inflammatory variety of dysentery, as in enteritis, the pulse is sometimes soft, and in the former, the animal functions are sometimes greatly disturbed.

(C.)—In which, the chronic stage of dysentery is protracted by an ulceration or excoriation of the intestines; the diarrhœa and morbid secretions are maintained; and pus is observed in the evacuations.

(D.)—In which, the chronic stage is protracted by a diseased enlargement of the mesenteric glands, and with the following variety, may be considered symptomatic.

(E.)—In which, it is maintained by an abscess formed in one of the abdominal viscera or their membranes, and is generally accompanied by hectic fever.

In this enumeration, many varieties are omitted, which have been described by Dr. Cullen and other nosologists; but the omission has been confined to those, which do not require a distinct treatment, or which have not occurred in tropical practice.

Although Dr. Cullen's character of the order of profluvia* is applicable only in part to dysentery, for there is very rarely fever, where there is simply an increased excretion of intestinal mucus; although it does not supply the constant, acute, and fixed pain of the inflammatory variety, which his character of phlegmasiæ† does; although even practical good might result from transplanting it to the order of phlegmasiæ, for there is extreme danger in treating a severe disease, possessing the character of phlegmasiæ, with the mild remedies adapted to the genera of

* "Pyrexia cum excretione auctâ, naturaliter non sanguinea."

† "Febris synocha; phlogosis, vel dolor topicus simul læsâ partis internæ functione; sanguis missus et jam concretus, superficiem coriaceam albam ostendens."

profluvia, and but very little danger in treating a genus of the latter, as you would a mild case of the former: yet, as the character of phlegmasiæ does not supply the increased excretions of intestinal mucus, and the frequent dejections, which are characteristic and constant symptoms of all the varieties of dysentery, while febris synocha et dolor topicus only characterize one; I think this part of the nosological arrangement of Dr. Cullen should be retained.

CHAPTER II.

ON THE SYMPTOMS OF DYSENTERY.

Section I.

Of the Symptoms that affect the Tongue and Fauces.

In mild cases of this disease the tongue and fauces deviate so little from the healthy state, that they do not become objects worthy of much observation; but if the disease be severe, or assume an inflammatory character, they undergo changes indicative of constitutional derangement. The tongue and fauces then become dry and clammy, and occasion the sensation of thirst; when fever prevails, the tongue is white and dry, or white and dry at the anterior part, and yellow at the root; or it is covered with a dark fur on the centre, and is white on the edges; or it exhibits a light yellow fur on the anterior, and is covered with a dark yellow fur on the posterior part;—this state of the tongue more especially prevails, when there exists an increased secretion of bile; or it is sometimes covered entirely with a dry black fur, and at other times with a dry yellow or bilious fur. The tongue frequently loses its sense of taste, or its sense becomes capricious, or is so perverted, that it mistakes bitter for sweet, nauseous tastes for what are apparently pleasant, and *vice versâ*. I have seen the lips and mouth ulcerated in different parts, but this is a rare occurrence in tropical dysentery.

Section II.

Of the Symptoms that affect the Stomach.

In mild cases of dysentery, the stomach is sometimes not at all deranged in its functions, or is but simply deprived of its appetite; in the severe and inflammatory varieties, the powsrs of digestion and the appetite become considerably diminished and impaired, or are wholly suspended for an uncertain period.

The stomach is frequently affected with nausea, that is constant, and which is occasionally accompanied with vomiting of bile, or of the crapulous contents of the stomach, or of both mixed in different proportions. Indeed, bile moved into the stomach by the retrograde action of the duodenum, is, in many instances, the cause of the sickness and vomiting which accompany dysentery, and when these very distressing symptoms are once induced, they in general continue, until the intestines are freely emptied by the copious evacuation of loose fæces, and a determination of the bile through the course of the intestinal canal is freely established.

There is another state of *peculiar* irritability of the stomach including nausea and vomiting, which is equally distressing and more dangerous, in which it is deprived of the capability of retaining any thing which is swallowed in the usual, or in a very moderate quantity, and even the mildest and blandest fluid becomes rejected, if taken in the quantity of a common drink; this state of the stomach is

commonly attended with unceasing thirst, which naturally inclines the patient to drink copiously. This peculiar irritability or disposition to be excited to inverted action, appears often to depend upon a morbid state of the stomach itself, and to reside either in the nerves or muscular fibres forming a part of it, and not to be caused by any extraneous obnoxious stimulus. The presence of bile or of undigested food is not the cause, for neither is ejected by vomiting. Its own secretions may excite the inverted action, but they cannot be always distinguished from extraneous fluids. Sickness and the action of vomiting sometimes take place, when nothing is ejected; and consequently no extraneous stimulant, or secretion of the stomach can be the suspected cause. It sometimes originates in sympathy with a diseased portion of intestine or an abdominal viscus. The cause of this irritability cannot always be ascertained; but it has been observed to accompany those cases, that have terminated in abscess of some of the abdominal viscera or of their coats. Inflammation of the stomach, or of the little omentum, or of the peritonæum situated over the region of the stomach, will necessarily excite a constant, fixed pain about the præcordia, and frequent vomiting, and has been sometimes detected as the cause of both. Frequent and *unappeasable* vomiting and nausea generally succeed the formation of internal abscess.

The bilious vomitings, those from peculiar irritability and other causes, often occasion subsequent pain and soreness about the præcordia, and at the attachments of the diaphragm to the edges of the false ribs, sternum, and lumbar vertebræ, owing to the convulsive actions of that muscle in vomiting, which frequently continue till death.

In the early, as well as in the advanced stages of dysentery, the region of the stomach is frequently affected with transitory pain from the presence of wind, bile, or undigested food, which may be distinguished from the pain of inflammation, by its not being constant.

In very severe and inflammatory cases, there often exists such an active state of sympathetic irritability through the whole canal, that any warm fluid or stimulant taken into the stomach, will propagate a peristaltic motion through the whole intestinal canal, and bring on tormina and tenesmus. A direct sympathy also appears to exist in dysentery, between the stomach and lower intestines; for it often happens that, if the stomach be stimulated by wine, warm food or drink, or aromatic and cordial medicines, an inclination to evacuate, or actual evacuations from the lower intestines very quickly follow.

Flatulence is a common symptom of dysentery, but cardialgia is a symptom rarely met with.

The powers of digestion are seldom diminished by the effects of the mild variety, but in most cases of the other varieties, they remain impaired long after the violence of disease is subdued, and even after its characteristic symptoms have been cured. This loss of function, however, obtains more with the animal than the vegetable part of our diet; for I have repeatedly observed the tough and even tender parts of animal food voided unchanged by the process of digestion, and but very seldom the vegetable part.

Section III.

Of the Symptoms that affect the Intestines.

It sometimes happens, that dysentery is preceded by copious diarrhœa, yet, in general, the most obstinate retention of natural fæces takes place in the intestinal canal, accompanied with flatulence, pain, and a sense of fullness of the abdomen. In consequence of this constipation, and perhaps of the stimulus of cathartics on the extremity of the ductus communis choledochus increasing the secretions of the liver, an accumulation of unusual quantities of bile takes place in the duodenum, which meeting with opposition to its ready passage downwards, becomes directed, by retrograde motion, to the stomach.

In the large intestines, but chiefly in the colon and rectum, an increased and altered action takes place in their secerning arteries and glands; and instead of the natural healthy mucus secreted in the usual quantity, they throw out serum, mucus, coagulable lymph, or blood, in unnatural quantities, and often considerably vitiated. From the irritation excited by the retention of hardened fæces, and from the novelty of the stimulus of these fluids on the villous coat of the intestines, now become diseased and possessed of increased sensibility, the muscular coat of the intestines, and the muscles employed in discharging the fæces, are frequently stimulated into action to evacuate their contents; and the effect of the stimulus on the intestine and anus, continuing after the contents are evacuated, produces the muscular movements called tenesmus and tormina; symptoms

which are sometimes extremely severe and distressing, and exhaust the sensorial power so rapidly, as to induce temporary faintnes or actual syncope. Bile, being sometimes mixed with the morbid excretions of the intestines, increases the force and frequency of tenesmus and tormina; often occasions a sensation of scalding around the verge of the anus, and just within the rectum; and the verge of the anus is sometimes excoriated, in bad cases, by bile and the morbid secretions. In the mild variety, the constipation readily yields to the action of cathartics, and the pain of tenesmus and tormina is moderate, and confined to the periods of evacuation. In proportion to the degree of severity of the disease, does the constipation become more difficult to remove, and the tenesmus and tormina more frequent and painful. In the inflammatory variety, the constipation is extremely obstinate; and the tenesmus and tormina are very severe, distressing, exquisitely painful, and leave but short intervals of comparative ease.

The evacuations in dysentery vary in number and quality, and they should be distinguished into fæcal, and dysenteric, the latter consisting of any of the morbid excrecretions of dysentery.

The evacuations are generally numerous, but their frequency is varied by the severity of the disease, and the nature of the secretions. In mild cases, the number of evacuations will not often exceed from six to twelve in twenty-four hours: while in severe cases, in the same time, the number fluctuates from twelve to twenty-four, and by far the greater number of cases may be comprehended in this variety. In the inflammatory variety, and in

some very severe cases, when the unequivocal symptoms of inflammation are not present, the frequency of dysenteric evacuations admits of considerable variation; I have known them to occur as often as four times in an hour, while in other cases they have not exceeded thirty-six or forty-eight times in twenty-four hours; and again in others, the patient has almost constantly confined himself to the bed-pan. In two cases I have known the blood and excretions flow constantly from the rectum, as the patient lay in his bed. In fatal and advanced stages, the evacuations are often passed involuntarily from a paralysis of the sphincter ani.

It may be applied to all the varieties, as a general observation, that the evacuations are more frequent in the night than in the day time, but more particularly so towards morning and the dawn of day, and, from this circumstance, may possibly be effected by solar influence. At other periods, the frequency of evacuations may be increased by obstinate constipation, by any fluid or food taken into the stomach, and propagating its stimulus by sympathy from it to the bowels. Again, the frequency is increased by the presence of particular collections of offensive secretions, or of undigested food, or of wind acting as stimuli to the intestinal canal.

As the number admits of great variation in different cases, so do also the nature and quantity of the evacuations.

In some cases of the mild variety the disease may be properly considered as local, and confined to the secreting vessels of some portion of the large intestines, without affecting the general constitution. The evacuation, in the

mild variety, commonly consists of a small quantity of mucus of different degrees of tenacity, opacity, or transparency, or of mucus, mixed with a small quantity of a serous fluid, that is sometimes streaked or tinged with blood.

In cases of the severe variety, the evacuations generally consist of a mixture of thin mucus, serum, and blood, in larger quantities, to which bile is sometimes added; while occasionally the mucus is nearly as thick and tenacious as jelly, and of different shades of colour and opacity.

In the inflammatory variety, and in some very severe cases, in which the unequivocal symptoms of inflammation are not present, these fluids are separated in much larger quantities, and the aggregate of mucus, serum, and blood, often amounts to some pints, discharged in twenty-four hours, and often forms a thin, sanious, or ichorous compound, like the washings of raw meat; or the three fluids are seen in separate proportions; or the blood most abounds, forming an appearance like a fluid mixture of serum and blood; or bile is temporarily discharged in considerable quantities, for several successive evacuations, and the appearance of bile obtains most; or pure blood is occasionally discharged in considerable quantities, at distinct periods; or it flows from the rectum involuntarily, in constant small quantities, so as to form a stream under the bed, as in James Eaton's case; or, in advanced stages, an actual, dangerous, and copious intestinal hæmorrhage supervenes suddenly, when the patient is attempting an evacuation, and induces syncope.

I have occasionally seen evacuations consisting of a large

quantity of thick, white, opake mucus, coagulated blood, and a small quantity of serum, forming a liver-like appearance.

During the progress and continuance of the disease, at different irregular periods, the evacuations undergo various morbid changes that alter their quality and appearance. The mucus sometimes becomes less tenacious, and sometimes is gelatinous, and of an opake, white color; a white coagulum, probably of lymph, and a thick caseous substance have been observed in some discharges. The blood occasionally becomes clotted. A black fetid substance has been evacuated, which in some cases appeared to be coagulated blood, and in others sloughy membrane, or sloughy portions of the villous coat of the intestines.* Pus and a thick sanies are not commonly observed, except they are met with at advanced periods of the disease, when the gut has suffered ulceration.

The evacuations also vary in smell. In the incipient stage of the disease, they do not often emit any distinguishable odour; but, in advanced stages, the dysenteric evacuations sometimes become offensive; and in fatal cases, they are generally extremely fetid, sometimes even for several days before dissolution.

Besides the bile mixed with the evacuations already noticed, a dark thick secretion from the liver is sometimes discharged like star-jelly; at other times, I have seen a thick green jelly apparently formed of coagulated green

* It is very possible that this apparent membrane may frequently be a discharged layer of coagulable lymph formed in the intestine, as it is in the trachea, in croup.

bile. In one instance I have seen a tough, circular, or cylindrical mortified membrane gradually discharged from the rectum to which it adhered; it was hollow, and evidently formed of a part of the intestinal canal; a portion was protruded daily, and if pulled for the purpose of extraction, it felt firmly attached to the rectum, and gave so much pain in its site, that I was obliged to desist, and from hence it was concluded, that it was formed of the inner coats of the rectum itself. The membrane was partly black and partly of a dark ash color; it was infinitely more tenacious than coagulable lymph; was somewhat elastic, and bore considerable force in extension, without breaking; and when cut away with the scissars, was not easily divided, but felt tough to the edges of the instrument, as if I had been cutting mortified integument. This case of Hawley left no doubt in my mind, that the inner coat of the intestine is occasionally voided in dysentery, and effectually removed the impression, that the denials of others and their suggested doubts on the subject had made.—*Vide Mr. Christie, No.* 4. *M. and P. Journal, page* 350.

I have observed, that the pure blood evacuated in dysentery has in general the appearance of venous blood, which cannot be wholly reconciled to the fact of its being thrown out from the mouths of the arteries; but the florid color is most probably changed by the hydrogen and sulphurated hydrogen gasses evolved in the intestinal tube, which possess the property of changing the colour of the blood.

It must be evident, on the slightest reflection, that the nature and quantity of the evacuations can only be correctly ascertained by constant inspection, and this part of medical duty is so important and instructive, that it ought

not, in any case, to be altogether dispensed with. Besides the useful information it imparts of the state of the disease, and the effects of remedies, it will lead to the detection of a difference between European and tropical dysentery.

Dr. Cullen has remarked that, " while the disease (dy-" sentery) continues, the natural excrements are rarely " evacuated; and when they are, they are commonly of a " hard and compact nature"—*paragraph* 1067; and again, " when natural excrements pass, they are in the form of " scybala, *i.e.* hard and separate bodies"—*paragraph* 1071. Sir John Pringle notices scybala—*page* 216, *Diseases of the Army*.

In India, and within the tropics, I have very rarely observed the scybala, which I was particularly led to expect in the commencement of dysentery; and with the exception of two instances, I have very generally found that the fæces which were evacuated, whether produced by the action of cathartic medicines or not, were, what are commonly denominated loose excrements; or, if they were evacuated in a solid form, their texture was soft, and their diameter much diminished in volume, if compared to the natural size. I have, however, seen milk, which had been drank, pass four hours afterwards in the form of soft curd, moulded into shape by the action of the intestine; but this occasioned excruciating pain, and required constant fomentation to ease the tormina, which was felt during its passage through the diseased portion of intestine, although its volume was small.

If the explanation be correct, which will be hereafter offered, of the nature and effects of this disease, it will be

concluded, that such a state of fæces as I have observed, must necessarily be produced, before they can conveniently pass through the diseased portions of intestinal canal. Yet it sometimes happens, that small pieces of fæces, of the size of peas, get enveloped in the tenacious mucus of the intestine, and are retained even when the alvine fæcal evacuations are frequent; but this circumstance is not always confined to the incipient stages of the disease; when it does occur, a peculiar irritation is kept up in the canal, that may be known by the evacuations continuing to be very offensive and fetid, after the intestines might be supposed to be cleared of fæces; by restlessness, thirst, a bad taste in the mouth, and, finally, the fetid pieces may, by inspection, be discovered in the evacuations mixed or enveloped in mucus, and sometimes blood.

Dr. (now Sir James) Macgregor has remarked, that in "500 cases of dysentery, he does not think that scybala "were passed in six of them."—*No.* 3, *Medical and Surgical Journal.* Mr. Christie however states, that "these stools, small in quantity, had a scybalous appearance." *No.* 4, *M. and P. Journal, page* 349.

The abdominal pain, in dysentery, varies in degree, and constancy.

In every case there is more or less pain felt at the periods of intestinal evacuations.

In the mild variety there is seldom any pain complained of, except at the time of evacuation; in some cases, however, the evacuation is preceded, accompanied, and succeeded by that kind of pain denominated tormina.

In the severe variety the pain is greater; it generally precedes the intestinal evacuations; accompanies them; and continues an uncertain time afterwards. The pain is not always limited to this period alone. In the very severe cases of this variety, where the evacuations are very frequent, the pains are more severe at those periods and during the intervals; and, from the frequent repetition of the stools, the pain scarcely ceases before it is renewed; and, although it differs in degrees of acuteness, it leaves such short intervals of perfect ease, as almost to become constant; yet these very severe cases may be distinguished from the inflammatory variety, by the pain not being quite constant, and by its alternating with short intervals of perfect, though transitory, freedom from it between the evacuations, and by its not being attended with fever. In some cases, pain of an obtuse nature is almost constantly felt between the acute return of tormina, but is not accompanied with fever, or they would belong to the inflammatory variety. In some cases of this, and in more of the inflammatory variety, the patient can distinctly feel when the natural excrements enter the diseased portions of the intestine; for they then excite great pain, from which he never obtains relief, until they are discharged per anum.

In the inflammatory variety, the abdominal pain is acute, constant, and fixed to some determinate spot, and is attended with fever, increased heat of skin, thirst, and, generally, frequency of pulse. This pain is not necessarily limited to any particular division of the abdomen, but occasionally occupies either the epigastric, hypogastric, or umbilical regions, or the pelvis, or it extends over all at the same time, as in Monsieur Hourie's case; it is, however, most commonly felt at the boundaries of the umbili-

cal and hypogastric regions, or around the navel, in such a fixed position, and with such constancy and acuteness, as to denote the indubitable existence of inflammatory action; and the pain, on attempting an evacuation, is greatly aggravated, and often becomes most exquisitely acute and distressing.

The part affected sometimes conveys a peculiar sensation: as, for instance, the pain at the hypogastrium often feels like an oppressive weight, or a tight, connected, heavy lump in the hypogastric region, when the patient is sitting in an upright posture; or when he moves from one side to the other in bed, the painful mass changes its situation also; or the patient will sometimes describe his sensation, as if it were like a tight cord drawn forcibly across the interior of the abdomen; all which sensations would appear to denote, that parts naturally detached and separated, were now closely united by adhesive inflammation. In these cases, the abdomen is often tumefied, and often feels hard or unyielding, and its compression with the hand produces a very sensible increase of pain, especially in the inflamed part; the latter circumstance occurs in all the cases of this variety.

When the rectum is much inflamed, either from original disease, or from inflammation being subsequently excited by the painful stimulus of the passing or accumulated acrid contents or morbid secretions of the intestines, it feels hot, painful, stiff and tense, as if greatly distended; and it was described by my patient and friend, Mr. C. Howard, as a vehement tension, resembling what, he supposes, he should experience, if a stake or hot iron were forcibly perforating the rectum; in these cases, the verge of the anus, in its

whole circumference, appears swelled and red; is painful; feels burning hot; and the sphincter ani appears to project beyond its natural position. It is, in fact, a state of acute local inflammation. When the rectum is inflamed, the scalding sensation from bilious and dysenteric evacuations, mentioned at page 11, is severely felt.

The inflammatory variety occasionally terminates in abscess, or mortification of the intestine or some abdominal viscus, the symptoms of which I shall briefly enumerate, and leave the appearances on dissection for separate consideration.

The disposition to the formation of abscess may be supposed to be established, or at least strongly suspected, when an original inflammatory attack, with fever and constant pain, continues more than two days without remission, or when a very severe case has assumed the inflammatory form, without suffering some remission in the same period. When the abscess is at length formed, (and this may with still more certainty be expected, if the symptoms have increased in violence progressively for three or four days,) rigors generally take place; cessation of pain ensues; and the patient flatters himself with a hope of recovery; but the previous symptoms are quickly succeeded by a heavy, obtuse pain; by a continuation of the fever; by quick pulse; thirst; furred tongue; extreme restlessness; jactitation; anxiety; inability to sleep; delirium; frequent vomiting; and by frequent copious evacuations of morbid excretions, sometimes mixed with a considerable quantity of blood: to these, perhaps, succeed hickup; floccitation; delirium, if not before induced; cold sweats; cold extremities; and death generally closes the train within three days, but is sometimes much longer delayed.

When mortification of the intestine or of some abdominal viscus takes place, the patient becomes suddenly easy, boasts of perfect freedom from pain, for which he "thanks his God," and assures himself of a speedy recovery; but his countenance becomes sunk, and displays different shades of livid and white hues; his eye looks wild, and afterwards glassy, or it becomes dull; the intestinal evacuations become extraordinarily offensive and fetid; hickup, coma, delirium, or convulsions supervene; the pulse becomes quick, and sinks; the strength is prostrated, and he soon dies. When, however, the mortification is confined to the villous coat of the colon or rectum, a recovery is possible, and the symptoms denoting the mortification of a vital organ are not induced.

Section IV.

Of the deranged Functions or diseased Affections of the Liver in Dysentery.

The liver frequently assumes morbid actions in dysentery, either from sympathy, or from the stimulant effects of the calomel and the cathartics on the extremity of the ductus communis choledochus; or from participating in the general derangement of the circulation and functions of the chylopoetic viscera; or from becoming affected with acute inflammation; or from having been primarily affected with chronic inflammation or obstruction.

In the mild variety of dysentery, the functions of the liver are only casually deranged. In the severe and inflammatory varieties, the most common morbid action of the liver

is an increased secretion of bile, chiefly excited by the calomel and cathartics administered, which, moved into the stomach, occasions head-ach, distressing nausea, and vomiting; or, determined through the intestinal canal, excites exquisite pain in its passage through the diseased large intestines and anus. The increased secretions are sometimes very sudden and irregular, and sometimes very copious.

The bile undergoes various changes in the shades of color: in its healthy state, it is "of a deep yellow brown "color, resembling the color of wetted rhubarb;" *(Abernethy on Local Diseases, p. 54.)* but in the increased secretion in dysentery, it is very frequently observed to be of a light green, or a deep bottle-green color, or of various shades between these. The bile becomes altered in consistence, for it is often so much deprived of its natural viscidity and tenacity, as to be perfectly fluid or dilute, and occasionally it has been observed to be more viscid and tenacious than natural, and sometimes coagulated or curdy. It also becomes more stimulant in its properties, especially when of a green color, and increases the frequency of the stools. The cases of dysentery, that occurred at the Cape of Good Hope, were attended more generally with increased secretion of bile, than those in the East Indies, China, and other tropical parts of the globe.

Inflammation of the liver sometimes arises in dysentery, and is plainly characterized by all the prominent symptoms of acute hepatitis; such as a constant, fixed, acute pain of the right hypochondrium, attended with fever, and full pulse, painful respiration, and vomiting; but it rarely happens, that the intestines and liver exhibit synchronous symptoms of inflammation; for, from the natural connexion in

the circulation and functions of these extensive viscera, an inflammatory action of one can be supposed capable of preventing or superseding the inflammatory action of the other; yet it is not to be doubted, that acute hepatitis and dysentery occasionally exist at the same time with marked severity, although it be a more rare occurrence, than is commonly credited or stated.

This inflammation has often terminated in abscess, or evident enlargement of the liver.

The moderate pains which are excited in the hepatic region, by a state of chronic hepatitis, are generally absorbed in the severe and exquisite pains the patient endures from the dysenteric affection; and they engage his attention so exclusively, that he overlooks any slight pains he may feel in the right hypochondrium; hence, the state of "obstruction" or chronic hepatitis is sometimes removed, without being suspected, by the mercurial remedies employed in dysentery, which are fortunately adapted to their cure; hence also, hepatic abscesses are sometimes discovered after death, when the previous existence of chronic inflammation had not been most distantly contemplated.

When the obstruction and chronic inflammation of the liver are not removed by the treatment adopted for the cure of dysentery, they become the cause of an obstinate state of chronic dysentery, which has not been enumerated in the nosology; for to notice it as a variety of dysentery, would have the effect of involving the consideration of chronic hepatitis, which should be treated of as a distinct disease.

It may be here observed, that Dr. Gourlay is of opinion,

"when the urine is high coloured, even green, scanty and "pungent," that this state becomes a "diagnostic" of "hepatic affection."—*Medico-Chirurgical Trans: vol.* ii. *page* 181, *and sc.* 9. When this condition of the urine is therefore observed, the right hypochondrium should be examined, and the degree of pain felt there, ascertained: the diagnostic is, by no means, an infallible one.

Section V.

Of the Symptoms affecting the Urinary and Genital Organs.

The urinary and genital organs sometimes become affected by sympathy, association, or from contiguity of parts. The urine is in all cases evacuated more frequently than in health; for the action of the bladder is so uniformly associated with the action of the rectum, that the emptying the latter is always attended with micturition, and as the rectum is often stimulated to action, the bladder contracts and is emptied also. This is all the deviation that commonly takes place in mild cases,

In severe cases, strangury is a common symptom. In the worst cases of the severe variety, the patient sometimes complains of great pain in the region of the bladder, attended with a constant desire to evacuate its contents. In those cases the urine is sometimes scanty, acrid, high coloured, and so stimulating, as to occasion ardor urinæ or scalding in its passage through the urethra, and a violent sense of pain in the glans penis, which induces the patient to squeeze it in his hand, after the action of micturition has

terminated. In other cases, the desire of emptying the bladder and the fruitless attempts which accompany it, appear to result chiefly from the direct sympathy established between it and the rectum; for the painful contractions of the bladder most frequently accompany tenesmus. I have known those symptoms of vesicular irritation to be so very distressing, as scarcely to admit of even temporary relief, and so constant, as to induce a very rational belief, that the bladder was inflamed.

The symptoms which I have enumerated, as occasional attendants on the worst cases of the severe, are also found to accompany the inflammatory variety of dysentery. In this, cystitis sometimes actually takes place, and may be distinguished by the symptoms characterizing it in Dr. Cullen's Nosology, "pyrexia; swelling and pain in the hypogastrium; frequent and painful discharge of urine, or suppression of it; tenesmus."—*Cl:* 1. *Ord:* ii. *Gen:* xix. Pain is also felt in the pelvis, as well as in the hypogastrium.

It has occurred, that the testes have become drawn up towards the abdominal ring by the contraction of the cremaster muscle, during the periods of intestinal evacuation, and pains in the testes and spermatic chords, have been sustained in the inflammatory and very severe cases, which have been thought to equal in severity, those that are felt in the same parts, in hernia humoralis or nephritis. Pain is occasionally felt in the loins, from the kidnies sympathising with the bladder, or there is a dull, obtuse pain, arising from laying on the back. Lancinating pains, in the course of the nerves of the lower extremities, are generally associated with those affections of the urinary and genital or-

gans, which are also not infrequently accompanied with cramps or spasms of the muscles of the calves of the legs.

The retention of urine is seldom obstinate or dangerous, yet I have known cases, where the urine was never evacuated for some days in succession, unless the pelvis was immersed in warm water, or covered with fomenting cloths.

The combination and variety of all the different pains and sufferings, which have been described as arising from the affections of the various viscera of the abdomen, must necessarily render want of sleep, jactitation, anxiety, despondence, and peevishness, very common attendants on bad cases of dysentery.

Section VI.

Of the Fever that accompanies Dysentery.

Inflammatory fever accompanies some cases of dysentery.

The febrile symptoms of "much increased heat, and red or high-coloured urine," are generally attended with thirst and restlessness, and are the only ones that invariably attend this fever in the tropics.

In northern, and also in high southern, latitudes, the "much increased heat" of synocha is generally attended with a dry skin; in the tropical latitudes, during the hot season, the skin is often moist, and in a state of perspiration: the "increased heat" of the body must then be inferred and determined from the patient's sensations, and

the sense of heat communicated to the medical attendant's hand, when it is applied to a portion of the surface of the body excluded from the contact of external air. In the cold season, the fever is attended with heat and dryness of skin, the same as in Europe.

It may, with much truth and justness, be observed, that when inflammatory fever is present, it is almost always accompanied with the other symptoms of inflammation, characteristic of the order of phlegmasiæ, viz. "phlogosis "or pain in a particular place, with the function of some "internal part injured; the blood when drawn and concre-"ted, exhibiting a coriaceous surface."—*Cullen's Nosology, Ordo* ii. *Phlegmasiæ.* Hence, in practice, if the patient's skin have felt hot, and he complains of thirst, I have instantly suspected the existence of inflammation, and have, on further enquiry, generally detected it.

In the mild and moderately severe cases of dysentery, *inflammatory fever* never occurs. In the very severe cases, in which the pain is not quite constant, inflammatory fever is often induced, and is a certain sign, that the disease is assuming, or has assumed, the inflammatory form.

In the inflammatory variety of dysentery, fever is always present, and may be safely regarded, as a sure criterion of the existence of inflammation of some internal viscus, for fever rarely exists in the Tropics, without being occasioned by local inflammation or determination.

Hectic fever is observed to follow the formation of matter in any of the abdominal viscera, membranes, or mesenteric glands, but it is not so well marked as in the northern latitudes of Europe.

Section VII.

Of the Derangements of the Heart and Vascular System.

The heart and arterial system, in the milder variety of dysentery, deviate so little from their healthy action, that the pulse does not supply any particular criterion of disease; the derangement is generally local, and confined to those arteries and glands of the intestines, that secrete the increased quantity of mucus or serum. In the other varieties, it is highly probable, there is an unusual determination of blood to the cœliac and mesenteric arteries, and the venæ portarum.

In moderate cases of the severe variety, the pulse on the first days of disease, is generally frequent, sometimes full; but it soon loses its fulness, and becomes soft, and, with returning health, regains its natural standard.

In severe cases of this variety, unaccompanied by fever, the pulse is generally full and frequent on the first days of the disease, but becomes soft and quick, probably from the loss of blood sustained in the intestinal canal; from the deficiency of new supplies; and from the exhaustion of sensorial power. From the same causes occasioning a deficiency of arterial blood, the pulse becomes small in advanced stages, or prolonged durations of bad cases, and the veins are less distended, and sometimes disappear from the surface of the body.

In the inflammatory variety, attended with fever and a

constant pain of the abdomen, the pulse, on the first and second days of the disease, is commonly full and frequent, and sometimes hard; but this is not invariably the case; for it is well known, that inflammation of the intestines is sometimes accompanied with a quick, small pulse, and this state of pulse is generally observed when the inflammation is very violent or extensive on the first days of the disease, and is commonly experienced when the inflammation has made some progress to suppuration. The blood, "drawn in this state and concreted, exhibits the white "coriaceous surface." The pulse becomes temporarily retarded or accelerated by sympathy, in irritable states of the stomach; or when it is oppressed with undigested food, or by bile; or when the intestines endure increased pain from the stimulus of acrid secretion, fæces, flatus, or other causes; and often when tenesmus and strangury prevail.

The pulse sometimes becomes small, quick and thready, before the fatal catastrophe; at other times, it is no sure index of approaching danger.

The quantity of blood circulating in the system must necessarily be diminished, in some cases, by the gradual discharges from the intestinal arteries: this induces paleness, and contributes to emaciation; but these effects are more quickly produced by sudden hæmorrhages, which often leave the patient without a possible hope of recovery.

It might have been remarked before, that, in some cases of dysentery, the bile is absorbed in such unusual quantities, as to effect an alteration in the constituent parts of the blood, producing a jaundiced yellowness of the skin and

tunica conjunctiva, and other signs of superabundance of bile in the circulation.

In the hot or south-west monsoon, in India, the subcutaneous vessels generally perform their functions with activity, maintain a free perspiration, and are easily excited to a profuse one; in calm weather, the perspiration is most copious. The free perspiration alluded to is not the effect of medicine nor of art, but is naturally excited by the heat of the climate; hence, fever and heat of skin sometimes prevail, when the skin is quite moist; and this peculiarity, of fever accompanied with free perspiration, should be retained in remembrance. In the cold or north-east monsoon, in India, the state of perspiration is the same as in colder regions; it requires the same arts of excitement; and fever is then accompanied by dryness of skin.

In the hot season, cold colliquative sweats are sometimes very copious, and commonly attend the fatal stages. The extremities at the same time occasionally feel cold two or three days before death.

The excretions of urine, sweat, and other excretions sometimes become very fetid, and the whole body occasionally smells putrid, one or two days before death.

Symptoms of dropsy are induced in various stages of dysentery, but most commonly so in protracted chronic cases. Œdema of the lower extremities sometimes subsides in the night time, and is occasionally permanent.

I have only seen one case of idiopathic dysentery, in which dropsy eventually pervaded the whole body, and, in

this case, an abscess was found after death in the investiture of the transverse arch of the colon.

The mesenteric glands sometimes become swelled, and affected with slow inflammation, which has terminated in suppuration; this has more particularly happened in those cases accompanied with ulceration of the intestine; and the inflammation and suppuration of the glands may be attributed, with much probability, to the stimulus of pus absorbed from the ulcerated intestine, and conveyed to the glands; or to sympathetic irritation. This affection of the glands becomes a cause of chronic dysentery.

Section VIII.

Of the Affections of the Nervous System.

The sensorial powers of volition become impaired, weakened, and sometimes finally destroyed.

In the mild variety, the muscular powers suffer but little diminution.

In the severe and inflammatory varieties, great prostration of strength is sometimes suddenly induced, and, in general, the muscular powers become daily weakened, in fatal cases, until their obedience to the will or to their natural stimuli is either suspended in a partial degree, or becomes gradually and wholly lost: thus, the following symptoms of great muscular debility occur in fatal or dangerous cases; the stomach and rectum lose their powers of retention; the sphincter ani becomes paralytic; the muscles of the tongue

and glottis articulate words with faintness and difficulty, and the power of speech becomes gradually lost: the action of deglutition is difficult to perform, and the power is at last entirely lost; the muscles of locomotion and support become weakened; the patient staggers under his own weight, and is at last unable to support himself; the orbicularis palpebrarum and oris become paralytic, and the patient lies with his eyes and mouth half open, and his eye dull and fixed.

The muscular movements are sometimes irregular, and sometimes become disobedient to the will and the powers of association; thus, the diaphragm contracts irregularly, occasions hickup, or suspends respiration; the respiration is in some cases quick and hurried, and is now and then alternated with a sigh or a long deep inspiration.

The extensor muscles of the foot sometimes contract irregularly, and induce cramps of the gastrocnemii. The muscles of the fore arm and fingers in some cases contract irregularly, occasioning subsultus tendinum, and the motions of catching at flies, and picking the bed cloaths. The muscles of the whole body are, in a few instances, affected with strong convulsions in dysentery. The spasmodic actions of tenesmus and tormina have been already noticed.

The strength and energy of the muscular powers are soon recovered, when the chylopoetic functions are restored to health and vigorous action.

Great exhaustion of sensorial power is sometimes first discovered by staggering, vertigo, or syncope, when the patient is placed in an erect position, or attempting to walk.

The intellectual faculties are in some cases lost, and the patient becomes delirious many days before death, or he lies in a state of stupor or coma, and talks incoherently. The sensual motions become impaired and finally lost; thus, the sense of hearing is occasionally rendered imperfect or becomes suspended; the sight becomes imperfect or deceitful, and the retina insensible at last to the stimulus of light or external objects.

Anomalous transient pains are, by many patients, felt in every part of the body, and should be attributed to the extensive sympathies, which the chylopoetic organs possess with all parts of the frame, through the medium of the nervous system, to which these organs are so extensively connected by the great sympathetic or intercostal nerve. To the same cause may be assigned, the great degree of mental irritability and nervous derangement which often accompanies and succeeds dysentery.

It remains to be observed, that the three varieties of the acute stage of dysentery, which I have described, sometimes change their character, and run into each other; thus, a case of the mild variety may progressively assume the character of the severe variety, either from the continued operation of, or exposure to, the occasional cause, or from a neglect or a failure of the appropriate remedies; and the severe variety, from the same causes, may assume the character of the inflammatory one. When these changes ensue, the practice must be necessarily accommodated to them, and as they take place, they should be vigilantly watched and assiduously combated.

Of the multiform symptoms which attend this disease,

those denoting inflammation of the stomach, intestines, liver, bladder, or of any of the inflections or duplicatures of the peritonæum, require the prompt adoption of powerful antiphlogistic remedies; while peculiar irritability of the stomach, vomiting, obstinate constipation, tenesmus, tormina, hæmorrhage from the bowels, increased secretions of bile, ischuria, strangury, and spasms of the muscles, call for the early use of the remedies adapted to their removal or palliation.

CHAPTER III.

Section I.

Of the Morbid Appearances on Dissection.

The morbid appearances, which the dissection of those who have died of tropical dysentery in the East Indies generally discloses, are inflammation; visceral adhesions; abscess; ulceration and mortification of the abdominal contents. It may be here observed, that in opening the abdomen of those, who have died of dysentery from the formation of abscess, a disagreeable gas often issues from the abdomen in considerable quantities, as soon as the peritonæum is divided; and of those, who have died of mortification, an intolerably offensive smell is often emitted.

Patients seldom die of dysentery attended with inflammation of any of the abdominal contents, without its having advanced to suppuration, ulceration, or mortification; hence, few opportunities offer of seeing the effects of simple inflammation alone; but in the dissection of those, who have died of abscess or mortification, distinct inflamed patches are sometimes seen, where no abscess has formed.

In the reflections or continuations of the peritonæum, whether mesentery or omentum, the inflamed patch or part is red, and much thicker than natural, and appears to be

formed of a congeries of vessels carrying florid blood. The inflamed part is generally of a dark red color in the centre, and gradually losing its deeper shades, it becomes lightly florid, as it recedes from the centre to the circumference or borders of the inflamed part. The inflamed part is generally thicker in the centre, and gradually decreases in thickness, as it extends to the margin.

The omentum is sometimes much thickened, and lays attached to the great curvature of the stomach, and, in highly inflammatory cases, it sometimes adheres to the peritonæum lining the parietes of the abdomen. Adhesions are also variously formed, which unite particular viscera to each other or to the peritonæum; and, in some cases, the abdominal contents are almost all adhering together.—*Vide Monsieur Hourie's case.*

When the intestine is inflamed, its coats are thickened; the peritonæal coat appears much darker and thicker, where it invests the intestine as a coat, than where the mesentery or mesocolon approaches to form the investing membrane, as if the inflammation spread from the intestine as a centre, all around to its approaching investing membrane as a circumference. I have found loose pus discharged into the cavity of the abdomen, from abscesses that have burst internally. Abscesses have been detected between the laminæ of the omentum, mesentery, and mesocolon, and in the liver. Where an abscess has formed about the intestine or peritonæal continuations, the membrane circumjacent to the abscess is red and swelled, from the number of blood vessels, which are observed to spread on its surface, and ramify in its substance.

The villous coat of the intestines is more disposed to ul-

ceration than the inner membrane of any other canal of the body,* that has an external opening, for the trachea, urethra, and œsophagus very rarely become ulcerated in consequence of inflammation; while dissection often demonstrates the villous coat of the intestines to be not only ulcerated, but to have been separated or peeled off in shreds from the muscular coat. Ulcers and ulcerations have been more particularly observed on the villous coat of the colon and rectum, of various sizes and of different appearances; and the ilium has not always escaped.

The colon and rectum have been found in a state of mortification: this has been either partial and confined to the internal surface of the intestine, or its whole substance has been completely mortified; in which case, the mortified part is of a livid color, is very fetid, "has lost its natural "tenacity," and is so soft as to allow any thing to perforate it that is pressed against it. The fæces have sometimes escaped through the mortified gut "into the cavity "of the abdomen." In Hawley's case, where the inverted villous coat of the rectum was expelled per anum, it had not lost much of its tenacity.

The mesenteric glands have been found in a state of inflammation, enlargement, and suppuration.—Many of those appearances on dissection are familiar to some oriental practitioners, and have been described or mentioned by those authors who have written treatises, pamphlets, or remarks on the dysentery of the East Indies; as will be seen

* Dr. Matthew Baillie, in his excellent work on morbid anatomy, has made a similar remark on the tendency of the villous coat to suppuration in Europe, where the occurrence is much less frequent than in the tropics.

in perusing Bontius, Clark, Wade, Girdlestone, Milne, and Curtis, on the Diseases of India; Mr. Christie's paper on oriental dysentery: *vol.* I. *page* 466 *of the London Medical and Physical Journal;* Dr. Macgregor's Reports, in *Dr. Duncan's Annals of Medicine, for* 1801, *vol.* 1, *page* 363-4, and in the third number of the *Edinburgh Medical and Surgical Journal,* and Mr. Glasse's Statement in *Dr. Clarke's Work, &c.*

The various terminations of inflammatory dysentery, which have been enumerated, and the morbid appearances on dissection which have been described, must not be considered peculiar to the East India disease; for authors supply ample evidence of the same results from dysentery in every part of the world. Dr. John Hunter, in his Observations on the Diseases of Jamaica, mentions, among the morbid appearances, irregular contractions of the colon, and increased redness of the contracted parts; tubercles of various sizes and number, in every stage of inflammation and suppuration; numerous ulcers of the intestine; appearances of inflammation, &c.

In a paper published by Mr. Fergusson in *Medico-Chirurgical Transactions, for* 1811, *vol.* ii. *page* 181, *et seq.* it is said, that "dissection exhibited a miserable mass of "disease in the great intestines; the colon being thick-"ened, knotted, and ulcerated to an inconceivable degree. "The liver was blackish, hard, and wasted." He is here speaking of dysentery, as it appeared in Holland, the West Indies, Spain, and Portugal.

Dr. Cleghorn, upon dissecting those patients who died of dysentery at Minorca, constantly found the great intes-

tines either entirely mortified, or partly inflamed and partly mortified; he also observed tubercles straitening the cavity of the colon.—*On the Diseases of Minorca.*

Hippocrates has noticed ulcers as the cause of this disease.

Galen states that dysentery terminates in abscess, ulceration, and abrasion of the villous coat of the intestine.

Celsus speaks of ulcers of the intestine in dysentery, or, as he calls it, in torminibus intestinorum.

Sir John Pringle, in Holland, found the intestines of those who died of dysentery, inflamed, ulcerated, mortified, or the villous coat abraded; visceral adhesions had also taken place.—*Diseases of the Army.*

Dr. M. Baillie has observed the villous coat thickened, formed into tubercles, and ulcerated, and the other coats of the intestine, thicker and harder.—*Morbid Anatomy, page* 175. The morbid appearances he has described, as the consequences of inflammation of the intestinal canal, more closely resemble the appearances disclosed by the dissection of those who die of inflammatory dysentery, in the East Indies.—*Vide page* 155 *et seq.*

Dr. D. Monro observed abrasions of the villous coat, and mortification.—*Observations on the Health of Soldiers.*

CHAPTER IV.

Section I.—*Diagnosis.*

Almost all the common diseases that affect the intestinal canal, do, in *some symptoms*, bear an analogy to dysentery; yet it can be distinguished from them with facility, chiefly by inspecting and attending to the nature of the evacuations.

Tropical dysentery has characteristic features distinct from diarrhœa, cholera morbus, enteritis, colica spasmodica or dry belly-ache, and a disease that Mr. Curtis has denominated "hepatic flux."

In dysentery, the evacuations, though frequent, are, at the commencement, often devoid of fæcal smell, and consist of mucus, serum, blood, or a mixture of these, while the natural fæces are retained; tenesmus and tormina are *constant* attendants, and are more or less severe.

In diarrhœa, the stools have a fæcal smell, are frequent, and consist of loose liquid fæces, without any admixture of serum or blood, and when mucus appears, it is transparent, mixed with the fæces, and is evidently an increased secretion of the natural mucus of the intestines.

In cholera morbus, the stools are frequent, but consist of loose fæces, mixed with bile, or undigested food. The

stools are more copious than in dysentery, and are only *occasionally* followed by tenesmus. Vomiting is also a constant symptom of eholera morbus, but not of dysentery.

Many of the symptoms of the inflammatory variety of dysentery, are the same as eharaeterize enteritis; but in enteritis, there are not any dysenterie secretions discharged by frequent evacuations, and there is but very rarely tenesmus; dysentery is always accompanied by both. It is distinguished from coliea spasmodica or dry belly-ache, for although obstinate constipation, tenesmus and tormina take place in both; in colic, there are not any dysenteric secretions diseharged, or any thing whatever evaeuated by stool.*

The existenee of simple dysentery in the East Indies, as an idiopathic disease, must be maintained; for I eannot perceive the advantages or propriety of conceding, that dysentery is always symptomatic of a morbid affeetion of the liver, when a eontrary opinion has been forcibly impressed upon me, by an attentive consideration of every symptom and case that have occurred in my practice. If the term "hepatie dysentery" be at all admissible in the nosology of the disease, it should be confined to those eases which are attended with unequivocal symptoms of hepatic inflammation or disease, and which I have elsewhere stated, are by no means frequent.—*Vide page* 22-3.

If there be not a single symptom present, indieative of hepatic disease, ean reason or experience sanetion the doetrine that infers the liver to be diseased, not because it dis-

* As the inspection of the evacuations is of so much importance in the diagnosis, I would remark, that the bed-pans should be always formed of flint glass, or white earthenware, as the real color and nature of the stools cannot be well aseertained in any other.

plays characteristic symptoms of it, but because the intestines are affected with acute dysentery? Mr. Curtis, the most modern author on the diseases of India, has doubted (*page* 164) and even denied the existence of simple dysentery in the East Indies. "Much more," says he, "to the "same purpose, will be found in Dr. Macgregor's Second "Memoir, and in Dr. Clark's Remarks; sufficient, we "think, to warrant the conclusion, *that the disease, which* "*they uniformly call dysentery, in India, is, in its na-*"*ture, symptoms, proximate cause, and also in its method* "*of cure, entirely different from that which has been des-*"*cribed under this name in all other countries; that it* "*differs in nothing from bilious and liver fluxes,* so com-"monly to be met with there; and that if this name is to be "applied, it ought to be joined with one, which may serve "to distinguish the disease from other varieties, such as "the hepatic or bilious dysentery of India."—*Curtis on Bilious Fever and Flux, page* 166. The opinion of Mr. Curtis is, in part, echoed in the review of Dr. Trotter's "View of the Nervous Temperament," in the twelfth number of the *Edinburgh Medical and Surgical Journal, for October* 1807, *page* 479. Where, in speaking of the effects of calomel in bilious affections, it is remarked: "*The dy-*"*sentery of the East Indies is in truth an hepatic flux,* "and something like this we occasionally see at home in "children," &c.

An appeal to every medical man in India, would most certainly be subversive of Mr. Curtis's "conclusion;" but it will be deemed a sufficient refutation of the opinion, and a proof of the separate nature, and distinct existence of each complaint, if a diagnosis can be established between them: if any difficulty occur in its establishment, it arises from Mr. Curtis having considered "bilious fever and flux,"

as one and the same complaint, when they are in fact two complaints, which ought to be separately and distinctly treated of, and distinguished as such in practice.

Mr. Curtis has divided the description and treatment of "bilious fever and flux" into three stages; the symptoms of which, concisely selected, are, in the first stage: purging, with more or "less griping and straining, uneasiness "of the præcordia, with stools of a bilious color, a dark "yellow, with a mixture of green"—*page* 122. "The "tongue yellow," and the "eyes and urine tinged," the stools of various color—*page* 126-7. In the second stage, "accumulations of diseased matters in the intestines, and "the stools accompanied with much griping," often "with "some blood in the stools, and frequently with dysuria; "the abdominal pain is more confined to a particular part." The third or last stage is distinguished by "colliquative "diarrhœa"—*page* 127-9.

The nosological character of acute dysentery has been comprized in the following symptoms—*page* 2. "While "the fæces are retained, frequent evacuations from the in-"testines of mucus, serum, or blood, or a mixture of these, "take place, and are preceded and attended by pain in "some part of the abdomen, and accompanied and followed "by tenesmus; pyrexia is not often perceptible, but is "sometimes urgent." A comparison of the characteristic symptoms of each affords a considerable difference between the two diseases: I shall, however, prosecute the diagnosis more minutely from my own extensive experience of the disease, but shall premise, that in the above concise selection of symptoms from Mr. Curtis's description, I have culled only those that appeared to belong to "bilious or

" liver flux," from which, he says, dysentery " differs in " nothing."

" Bilious flux," or (more properly speaking) diarrhœa, is preceded by a yellow tongue, and not unfrequently, yellow skin and eyes: pain about the præcordia; indigestion; flatulence; and, often vomiting of bile; and, in some cases, all the symptoms of increased secretion of bile precede it several days.

Oriental dysentery is only occasionally preceded by such a stomach affection, and by vomiting of bile. Increased secretion of bile, a yellow tongue and skin, are only incidental, and for the most part consecutive.

In " bilious flux" or diarrhœa, the evacuations at first are always a mixture of loose fæces and bile, and are commonly attended with tormina, and a sense of burning at the sphincter ani.

In oriental dysentery, the evacuations at first consist of mucus, serum, or blood, or a mixture of these, attended with tenesmus and tormina, while a discharge of fæces is unusual, and of bile, incidental and only temporary. In it, bile is not often evacuated until cathartics have operated, and it is then mixed with fæces and the morbid dysenteric excretions, and it is more than probable, that the increased secretion of bile, in dysentery, is often excited by the calomel and cathartics exhibited for its cure.

In " bilious flux" or diarrhœa, bile is voided before the operation of purgatives, and continues to be so until the disease is cured, and mucus, serum, or blood, are not discharged, until, in advanced stages, the morbid or " vitiated

"condition of the bile" is so stimulant, as to excite their discharge, and finally occasion the excoriation or ulceration of the intestine. When blood appears in bilious flux, it is generally pure and clotted, and in small quantities, and the mucus is generally transparent.

"Bilious flux" or diarrhœa is always excited by an increased or morbid secretion of bile, the symptoms of which arise progressively, increase in severity, and are easily known in practice: oriental dysentery is distinguished, by the increased action of the secreting vessels and glands of the villous coat of the large intestines, and the worst symptoms are commonly induced at once. The increased quantity of bile excites an increased peristaltic motion of the intestines and a consequent discharge of fæces; in fact, the bile is purgative; in dysentery, obstinate constipation has formed, and the diseased state of the large intestines offers an impediment to the passage of the fæces.

Finally, bilious flux is a disease, which primarily originates in a morbid action of the liver, and the affection of the intestines is consecutive and incidental; while oriental dysentery derives its primary origin from an inflamed action of the mucous membrane of the large intestines, and the derangement of the functions of the liver, is, in general, consecutive, or excited.

Mr. Curtis has assigned the cause of bilious flux to accumulations of diseased bile, and undigested and disordered fluids, while the most common remote cause of dysentery, is checked perspiration.*

* The author sustained four severe attacks of bilious diarrhœa, or "flux," in India, has felt its symptoms, and well studied its character.

Let us now examine, if oriental dysentery "be, in its "nature, symptoms, proximate cause, and also in its me- "thods of cure, entirely different from that which has been "described under this name, in all other countries." I have treated cases of dysentery in many parts of Europe, South America, Africa, *i. e.* at the Cape of Good Hope, in the Northern and Southern Atlantic, in the East and West Indies, in China, and the Southern Pacific, and I have not been able to discover this "entire," or *any essential difference*, between dysentery in these countries and regions, and in India, and what is singular, I have never, in any of the above situations, found it attended with "contagious "pyrexia," or of a contagious nature. The character of the disease was the same every where, and only discovered some slight peculiarities: thus, at the Cape, the increased secretion of bile, was a more common symptom. In Great Britain, and in France, the disease is less frequent and generally less inflammatory than in the tropics; for in our climate, the lungs and Schneiderian membrane, are more disposed to increased and inflammatory action from checked perspiration, than the inner membrane of the intestine. In the East Indies and in South America the disease is the most prevalent, and most destructive.

First then, "*Of the Nature of Dysentery.*" Authors furnish the most incontrovertible evidence of there being two species of dysentery, which differ in their nature, in this respect, that one is attended with "contagious pyrexia," and the other is not.*—Oriental dysentery resembles in its nature that which is not contagious.

* When European dysentery is said to be contagious, it is now generally believed, that the contagion is propagated by the fever of the typhoid form that accompanies it.—*Vide Dr. Harty's Observations on*

2dly. "*Of the Symptoms.*"—The symptoms characteristic of oriental dysentery are the same, as those enumerated by Dr. Cullen, Sir Geo. Baker, Sir John Pringle, Dr. Clark, Dr. Hunter, and other writers, and correspond with the symptoms that have been selected by the different nosologists, to mark the nosological character of dysentery, with the sole exception of "contagious pyrexia."

They do not differ from the symptoms described by Dr. J. Hunter, Moseley, and other writers on West India dysentery; by Galen, Celsus, Dr. Cleghorn, Mr. Briggs, (*Medicina Nautica, vol.* ii. *page* 430,) Dr. Dewar, and others, who have written of dysentery in the Mediterranean, Egypt, and other parts of the globe.

3dly. "*Of the proximate Cause.*"—I shall simply observe, that I feel quite incompetent to decide upon the "differences," in this respect, as authors have not coincided in opinion, and have referred it to different circumstances; I shall content myself with observing at present, that, I think, an essential difference does not exist.

4thly. "*Of the Method of Cure.*"—It may be observed, that the mercurial part of the treatment, has not been so freely adopted in some parts of the world, as in India; but in the situations I have enumerated I have found it equally appropriate, and I have recently treated cases in Europe, with striking success, upon the principles and method of cure recommended and detailed in this Treatise.

Dysentery, and Mr. Fergusson's paper in vol. ii. *Medico-Chirurgical Transactions.*

Dr. Clark has adduced many cases of dysentery, which were quickly cured by calomel, in the neighbourhood of Newcastle, *page* 346 *et seq.** The mercurial plan of treatment is recommended by West India authors, and has been found as successful with our army in Spain, Portugal, and Egypt, as in India.—*Vide Mr. Fergusson's paper already quoted; Dr. Gourlay's Treatise, &c.*

The observations on diagnosis may here be terminated, by remarking, that men may be placed in situations in India, favorable to the production of typhus fever, and if dysentery should be combined with it, it is probable that this combination of disease may become contagious. Typhus fever is occasionally met with at Bencoolen, on the coast of Sumatra, and sometimes in Bengal, during the cold season; it is therefore possible that oriental dysentery may be combined with it, and assume the contagious form. I must candidly state, that I have never met with, or as yet heard of, such a combined form of dysentery in India, as the one, whose possibility of existence I have just suggested; nor have I ever seen dysentery communicated by contagion, and it would perhaps be more proper to consider the typhus fever as contagious, and the dysenteric symptoms as being peculiar to a variety of typhus, which might be denominated dysenteric typhus, instead of contagious dysentery. I must not omit to mention, however, that my friend, Mr. A. Copland Hutchison, related to me a very striking instance, in which he found dysentery *in Europe* to be contagious, among the crew of a ship of which he was the surgeon.

* See his "Practical Observations," &c. Part II. Chap. 3.

CHAPTER V.

Section I.—*On the Prognosis.*

Dysentery terminates in recovery, abscess, mortification, chronic dysentery, and death.

The prognosis may be favourable in all mild cases, and should be decidedly so, if fæcal evacuations and a free perspiration are followed by evident relief.

A recovery may be expected in the least violent cases of the severe variety of acute dysentery, if manifest benefit be derived from the remedies employed on the first days of disease, or if great abatement of symptoms succeed the induction of ptyalism.

All truly severe cases of dysentery are dangerous; but there is great probability of ultimate recovery in every one, if great or gradual relief of symptoms be obtained in the first week of the complaint, from the medical treatment adopted; this is, however, subject to some limitation, as dangerous symptoms may be afterwards induced in the chronic stage.

Even in inflammatory cases, attended with fever, hopes of recovery may be justly indulged, if the fever and symptoms of inflammation be subdued, or greatly reduced, on

the first or second, and sometimes on the third or fourth, day of the complaint; but if they are not, abscess or mortification will ensue.

The diminution of the quantity of morbid excretions, the abatement of pain, and the maintenance of perspiration at the same time, should be considered favorable circumstances. Even a change of excretions from thick to thin, and *vice versa*, is favorable, if there be a diminution of quantity. Diminished frequency of pulse, and abatement of pain, after bleeding and purging, are favorable symptoms.

All severe and inflammatory cases have a strong tendency to terminate in chronic dysentery, the duration of which is uncertain; hence expectations of a recovery in a shorter period of time than six or eight weeks, should not be in general entertained in those cases, even under favorable circumstances. Hopes of recovery within a month may be indulged in moderate cases, and in a shorter period in mild cases.

Ulceration of the intestine may be justly apprehended in a greater or less degree, in all cases, where there is a copious discharge of blood and serum, or ichor, on the first days of disease, but especially if it continue more than a week, attended with very frequent dejections, and much intestinal pain during the dejections.

Copious and frequent evacuations of dysenteric discharges attended with obstinate retention of fæces, severe tenesmus, and tormina, are dangerous.

Fever and inflammatory symptoms are always dangerous, as is acute hepatitis, combined with dysentery.

Vertigo or syncope in an erect posture, great loss of muscular power, great irritability of the stomach, especially if of long duration, a small and constant intestinal hæmorrhage, and lientery, are dangerous symptoms.

The failure of mercury to excite ptyalism, after it has affected the mouth with soreness, is a mark of great danger.

The prognosis is unfavorable in all cases, when no relief is obtained from the remedies employed; and, in the fatal cases of inflammatory dysentery, it but too often happens, that every active remedy or medicine prescribed, fails to produce the result that is expected from it, and successive disappointments ensue, until the symptoms of abscess and of mortification, enumerated at page 20, 21, are induced, which generally, and often speedily prove fatal.

Mortification of the villous coat of the rectum, and of the large intestines, is not always fatal, but extremely dangerous.

Fetid stools and excretions are dangerous, and general fetor of the body is a fatal symptom.

Paralysis of the sphincter ani, and involuntary discharges of fæces, are very fatal symptoms; instances of recovery, after their appearance, are very rare.

Copious and sudden intestinal hæmorrhages (I have strong reason to believe) are always fatal, as is hickup, in cases where great debility has supervened.

Delirium, coma, or convulsions; cold extremities, and cold colliquative sweats: subsultus tendinum, and picking the bed cloaths, are fatal symptoms.

Great exhaustion and suspension of the powers of volition, and of the sensual motions are generally fatal.

A small, quick, intermitting pulse, is generally a fatal symptom.

CHAPTER VI.

Section I.—*Of Predisposition to Dysentery.*

From much experience and attentive observation, I have been induced to believe, that the constitutions of many Europeans, who reside in tropical climates, and of those who occasionally visit them for business or duty, acquire a predisposition to dysentery and other tropical diseases, and often appear to do it in a short time after their arrival.

The proposition does not admit of positive proof, only, because we cannot often explain the precise mode, by which causes produce their effects on the constitution; but when it is observed, not in a few, but many instances, that Europeans of all ages become subject to repeated attacks of dysentery in tropical climates, who have never sustained one in Europe, it becomes a fair deduction from facts. Thus, John Yates, who, on taking cold in England, generally became afflicted with coryza and catarrh, always sustained an attack of dysentery, when he caught cold in India; two months of his life seldom passed away without one, and he died after enduring ten different attacks in the space of two years.

Numerous instances of acquired predisposition might be adduced, where its consequences have compelled the patient to relinquish his pursuits in, and fly from, a tropical

climate, and many, though less remarkable than Yates's, where the predisposition to an increased secretion from the membranous lining of the organs of smell and of respiration in Europe, have been changed to an increased secretion of the membranous lining of the intestines in the Indies. Indeed, dysentery and diarrhœa are very frequent complaints in India, and diseases of the chylopoetic viscera constitute the majority of cases in medical practice, while affections of the nasal and pulmonary membranes are comparatively rare.

A short, but I fear, unsatisfactory attempt will be made to explain the manner, in which this predisposition of Europeans to dysentery and other chylopoetic diseases, is conferred by, or acquired in, a tropical climate: I shall at present suggest, that it probably depends upon the direct or reverse sympathies or associations of action established between the skin and the stomach, intestines, liver,* and other abdominal contents becoming more closely, strongly, and intimately connected in the tropics than they were in Europe; upon the intimate sympathies between the skin and pulmonary and Schneiderian membranes existing in temperate climates, becoming weak and less connected; upon the impetuous and unusual determination of blood to the capillaries of the skin copiously increasing their action and excretions, and upon the intestines and their mucous membrane becoming more predisposed to disease, by being subject to constipation, the use of cathartics, diarrhœa and cholera morbus.

* These sympathies have been aptly termed, cutaneo—intestinal, cutaneo–hepatic, &c. by Mr. J. Johnson, in his valuable work on the Influence of the Atmosphere, on Health, &c. and have been noticed by Sir Gilbert Blane, Bart. M.D. thirty years ago, in his invaluable work on the Diseases of Seamen.

The changes of associated action are principally effected by the alterations that increased atmospheric temperature and the tropical habits of life produce on the vascular and secreting systems. When the European arrives in the tropics, the atmospheric temperature* acts as a powerful direct stimulus to the heart and arteries, the strong pulsations of which are felt on the temples and other parts; increases the natural temperature of the body to 100°, and occasions the sweat to be exuded in such abundance, as to become absorbed by the cloaths, and to exhale in vapour from them, and this more especially, if engaged in exercise, or exposed to the sun's rays; which, beside, have sometimes the effect of inducing a panting for breath and cool air, that is very distressing; as well as prickly heat, thirst, and langour.

A synchronous and powerful association of action is manifested between the stomach and capillaries of the skin; for, on taking any stimulus into the stomach, especially if it be a warm fluid, or spirituous potation, or hot and spicy currie, an increased action of the capillaries of the skin is directly induced, producing a copious and increased perspiration, and, with most people, in the first year of their residence in the tropics, a most distressing and unpleasant sensation of heat and pricking pain in the skin, denominated

* In the Tropics, speaking generally, the thermometer in the hot season, at mid-day, varied from 84 to 98°, of Fahrenheit, and at night, is about 74; and in the cold season, from 64 to 84, at mid-day, and from 45 to 63 at night. The greatest relative heat is during calms and land winds. The mean temperature of the equator, according to Humboldt and Dr. Brewster, is 81,5. That of Madras, is 80,42.—The difference of temperature between mountainous situations and the plains is great, and frequently amounts to 20°. According to Dr. Davy, the difference of temperature in the tropics between the air on land and at sea is 10°, sea air being so much colder.

" prickly heat," which is seated in little transparent watery vesicles, or papillæ, on its surface. From these circumstances, it is concluded, that the stomach and capillaries of the skin act by direct sympathy, with increased energy. But it must be remembered, that the action of the capillaries is not only temporarily augmented by sympathy, but, to a certain degree, is permanently maintained by the constant presence of the stimulus of unusual heat.

The increased expenditure of the fluids, by perspiration, naturally excites thirst, and requires new supplies to be often taken into the stomach; these potations are often of a spirituous nature, and, by their stimulus, eventually impair the process of digestion, while their frequent renewal serves to render the gastric juice less active, by diluting it, and to maintain the sympathetic actions, described in the preceding paragraph.

The expense of the fluids in perspiration appears to induce an increased activity of the lacteals and lymphatics, and a disposition to constipation is thus produced, by the lacteals and lymphatics absorbing the intestinal mucus, and the more fluid parts of the ingesta.*

In the winter and spring of Europe, the coldness and vicissitudes of the atmosphere occasion an increased excretion from the membranous tissues of the organs of respiration and smell, and a reverse sympathy is most closely

* In India, the torpor of the intestines, in every species of constipation, powerfully affects the stomach by sympathy, and induces a torpor, or at least very sensibly diminishes the activity of its functions, as is observed in colica spasmodica, in common constipation, and in a disease that should be called continued constipation.

and intimately maintained between them and the capillaries of the skin, and increased secretions or inflammatory actions of the former and of the thoracic viscera are induced, when the latter have their excretions checked or suppressed. In the tropics, the temperature of the atmosphere in the day time is generally above 63°, in which the secretions of these membranes are uniform, and so equally balanced by the absorbents, that an excess but rarely occurs, and thus the vicarious discharges between the skin and these membranes no longer take place, their strong reverse sympathies become weakened and then dissevered, and those who were subject to great secretions of mucus from these membranes, and to pulmonary and catarrhal complaints in Europe, become divested of their pre-disposition to them in the tropics, as happened in my own case. It appears to me that the uniform and healthful action of the bronchial and nasal membranes has a considerable share, in common with other causes, in determining and establishing the close and strong sympathies between the skin and chylopoetic viscera, but more particularly the liver and the intestinal membrane, by which the derangement of the cutaneous functions produces hepatic and intestinal inflammation or increased secretion.

The customs and habits of India, as well as the climate, favor the establishment of a predisposition to dysentery, and other chylopoetic diseases.

The stomach is subjected to more frequent and stronger stimuli, and to a change in the periods that it has been excited to action, by conforming to the luxurious habits and dietetic customs of India, which provide and serve up animal food at their meals three times a day, and vinous and fermented liquors twice.

The wary European, who has long resided in a tropical climate, has been taught, by experience, the necessity of temperance and abstemiousness; he eats sparingly at his meals; cautiously avoids excess; rejects every food or drink which disagrees; and feels no ill effects from long established habits, while they are temperately observed. Not so the European, who has just arrived in rude health and with vigorous unimpaired digestion, and who has not yet been taught to moderate his desires, check his appetite, or restrain his inclinations; for, tempted by the abundance and variety of the luxuries placed before him, and perhaps by their novelty, he indulges in a hearty meal, and copious libations of wine, and retires to rest. By the excitation of these stimuli at unaccustomed periods, the heat of the body, the action of the cutaneous capillaries, and of the heart and arteries, are increased by sympathy with the stomach, and a state of stupor, drowsiness, or transient sleep, are perhaps induced by repletion, and a slight degree of intoxication: in this state, he is induced to throw off his cloaths, and expose himself on a couch, almost naked, to the open atmosphere, or lay down where there is a current of air: his sleep becomes restless and interrupted, by the increased impetus of the blood in the vessels of the brain, superinducing a state of waking, *(Cullen's Physiology)* by pains of the stomach, arising from repletion and indigestion, and by the uneasy sensation of heat; a gentle morning breeze at length arises, which, by degrees, carries off the redundant heat, and at last fans him to sleep; but if he continue exposed to it, (as is generally the case,) or if it become fresh, moist, and cold, or the morning dews fall, they check the perspiration, and induce the inflammatory diseases resulting from it.

There is a particular circumstance which conduces to the

suppression of the perspiration on the surface of the abdomen, and which it is probable often induces dysentery or diarrhœa. The copious perspiration of the newly arrived European, becomes accumulated, when he is sitting or walking, on the lower part of the shirt, more especially about that part of the abdomen where the waistband of the small clothes or pantaloons presses against it, the tight or close application of which occasions an increase of heat and of perspiration at this particular part, during the day, and intercepts the exhalation as it flows down the body; hence, if he should lay down in this state, cold will be induced on a particular part of the abdomen, by the evaporation of the exhaled fluid from the wet linen in contact with it; perspiration, before profuse, will be now effectually suppressed, and its injurious consequences be felt by the chylopoetic viscera.

The natives in the East Indies appear to avoid this cause of dysentery, by wearing sashes of muslin rolled thickly round this part of the body, both by day and night.

The digestive powers of the stomach become weakened and diminished, and in this state conduce to the occasional derangement of the intestines. Various causes concur to weaken the digestive functions, either directly or sympathetically: and it is presumed that the digestive functions are gradually impaired, by being excited to more frequent action, by the more frequent potation of fluids; and to more vigorous action, by the frequent use of animal food, and of spirituous and vinous potation; by the dilution of the gastric juice, which takes place in consequence of the frequent ingurgitation of fluids, to supply the increased perspirative expenditure; by being stimulated at unusual periods, from

the change of habit in the hours of eating; by the induced disposition to constipation; by the great quantity of sensorial power expended in the increased action of the heart, arteries, and capillaries of the skin, with which the stomach is intimately connected by sympathy; by the disagreeable sensations of atmospheric and prickly heat, which have sometimes a peculiar effect in taking away the appetite; and by the constitution generally being deprived of the accumulation of strength, which takes place in sleep. Thus, soon after the arrival of the European in India, the powers of digestion act with diminished vigour, while the capillaries of the skin act with great energy, and a reverse sympathy becomes established between the powers of digestion, and the perspirative action of the skin, and, after a time, it is observed, that the appetite and powers of digestion are diminished in the hot season, when the action of the capillaries is increased; and increased in the cold season, when the *sensible* perspiration is diminished.

From the diminished powers of the stomach, and from the European not having established new habits of abstemiousness adapted to its state, undigested food is occasionally passed into the intestines and there occasions diarrhœa.

A richer diet of animal food, with an increased quantity of spirits, wine, or fermented liquors, and perhaps a debauch on meeting friends in India, excites the liver to increased secretion of bile, and occasions bilious diarrhœa.*

The constipation, occasioned by the increased action of

* The author partook of the social board on the evening he landed in India, and on the following morning he was attacked with a severe bilious diarrhœa, attended with a burning heat of the rectum in passing his motions.

the lacteals, sometimes terminates in bilious accumulation and diarrhœa.

It sometimes happens, that Europeans suffer frequent attacks of diarrhœa, during the passage from Europe to India; and from eating the tropical fruits, after their arrival.

The practice of taking calomel and other strong purgatives to prepare the habit for "assimilation to a hot climate," is objectionable, inasmuch as it accustoms the liver and the villous coat of the intestines to habits of increased secretion.

From these causes of diarrhœa, the secreting vessels and glands of the villous coat of the intestines become subjected to an increased secretion of intestinal mucus, and to increased action, at irregular periods; now, I believe, that membranous linings of cavities lately affected by disease, sooner take on morbid actions, than others which have continued in health, if they be both liable to disease from the same exciting cause. Hence, from the acquired habits of increased secretion, which renders the intestines more susceptible of similar actions, and from the reverse sympathy* established between the vessels of the intestine, and the

* Although the capillaries of the skin on the abdomen and the lymphatics of the large intestines appear to act by direct sympathy, yet, in tropical climates, it is probable, that the secreting vessels of the villous coat and of the skin act by reverse sympathy, and when the latter are stimulated to increased action by heat, the former may act with diminished energy, and *vice versa*,—so that the diminished secretion of intestinal mucus, as well as its increased absorption, may contribute to the constipation, which so often follows profuse perspiration in India.—*See page* 56.

capillaries of the skin; when the perspiration is checked or suppressed by the imprudent exposure already mentioned, or by other causes, the equilibrium of the circulation of the blood is lost—more is determined to the cæliac and mesenteric arteries than in health; and the vessels secreting intestinal mucus become affected with increased or inflammatory action, and an independent predisposition to dysentery becomes established.

It will necessarily occur to every one, that great dietetic luxury and tropical indulgence, can only be the lot of wealthy settlers and civilians, and military and naval officers, whose incomes enable them to conform to the tropical habits of life; and that they are happily out of the reach of the soldier or the sailor.

It is admitted, that the latter do not often suffer from the effects of irregular hours of eating, or from too frequent indulgence in animal food, yet they are subjected more to the operation of some of the other causes, which induce predisposition, and are unable to avail themselves of those expensive conveniences and inventions, which have been found to counteract the effects of tropical heat.

The beef, supplied the soldier and sailor, is more difficult of digestion, and occasionally induces indigestion and diarrhœa.

They are more exposed to the heat of the sun, and to exercise and labour under its rays; the sailor is exposed to hard labour in the sun, on the yards, decks, and in the tops of his ship, and is sent ashore on watering, wooding, and other parties of duty; at night, he is confined in a

close hammock on a hot crowded deck. The soldier does not undergo so much constant bodily labor under the sun's rays, but he is sometimes more exposed during the hardships and privations of a campaign, or during long marches in changing stations. His tents or routies are not so good a protection from the sun's rays, or night dews, as the decks of a ship, or as they ought to be; for they are crowded, are permeable to the sun's rays, and only admit of a free perflation of the breeze at the bottom.

The sailor indulges more frequently in intoxication and the use of spirits, which are an inordinate stimulus to the heart, arteries, and cutaneous capillaries; are a powerful cause of derangement to the chylopoetic organs, and but too often induce bilious diarrhœa.

The soldier's conduct in this resembles the sailor's; on his arrival in the Indies, some arrears of pay are generally due, and, prompted by a desire to spend his money, to make his "heart glad with wine," at the period of escaping from the dangers and confinement of a sea life; and allured by the cheapness of arrack, rum, toddy, and other intoxicating liquors, to which he has easy access, he is oftener guilty of intoxication, and the imprudencies and exposures accompanying it.

Both soldiers and sailors are inattentive to those prudent rules of conduct, by which checked perspiration is prevented.

In general, these two classes of Europeans are more subject to dysentery and other diseases, than the civilians and officers; and His Majesty's regiments have been ob-

served to sustain more numerous losses by death from those diseases, than His Majesty's ships; this may depend in a great measure on the greater or less degree of exposure to the remote causes, as well as to predisposition, and to the sailors being more immediately under the eye of their officers to enforce regularity.

If the attempt to explain the manner in which the predisposition to dysentery is acquired, does not satisfy the expectations of the reader, it is hoped, that he will concur in the utility of some maxims and rules to be deduced from it.

Every circumstance that increases the heat of the body, and the action of the circulating system, should be avoided. All unnecessary exercise and exposure to the sun should be declined, as the temperature of the atmosphere is much increased by the direct influence of the sun's rays. The thermometer, exposed to the sun in the hotter season, is raised from 30° to 50° higher than it stands in the shade, and many degrees higher than the natural temperature of the body.* When Dr. Fordyce was in a room heated to 130 degrees; the heat of the body was 100°, and he could only endure it 15 minutes.

* The above observation was taken from a thermometer with a box-wood scale, whose bulb was defended by a lacquered brass cover, which, being of metal, is said to have occasioned deception; "because a small glass thermometer, with an ivory scale, never indicates a difference greater than a few degrees between the most direct exposure to the sun and the shade in a tropical climate;" but a thermometer with a metallic scale is said to indicate the difference I have stated.—*See London Medical and Physical Journal for April*, 1823. The same thermometer, from which I obtained the above results in the hot season, only indicated a difference of 10 degrees in the cold season.

The newly arrived European should avail himself of all the contrivances and inventions, which have been made to moderate the effects of external heat, and temperature of the body. He should not disdain to be carried in a palanquin, even short distances, after the rising of the sun, or to be protected from its rays by the native umbrella or chatty. The warm dresses of Europe should be laid aside, and he should adopt light loose dresses, which admit the air, to carry off the redundant heat from the skin. The artificial breezes raised by the punka and the large fans, and the cooling effects of wet tats during the land winds, will be found too refreshing to be neglected.

Temperance and moderate abstemiousness cannot be too strongly inculcated, and the newly arrived European should eat and drink very moderately at his meals; should partake of animal food once a day; should cautiously avoid hot curries, spicy soups, and excessive indulgence in spirituous or fermented potations; and be careful not to be guilty of repletion or intemperance, before he retires to rest. He should acquire such a command of his inclinations and propensities, as not to drink *copiously* to quench his thirst; his drink should be water, or a fluid of the most simple nature, and moderate in quantity; for thirst is often relieved by a small, as well as by a large quantity of fluid. If thirst be accompanied with languor, half a glass of Madeira wine will hardly fail to relieve it as effectually as a copious draught of spirits or wine in water. The wine should be repeated as seldom as possible, and copious potations of spirits or wine with water, or the too frequent use of lemonade and other slops should not be indulged in. Calomel and other strong purgatives should not be incautiously employed on ordinary occasions, or frequently taken

as a necessary prophylactic. To obviate or prevent constipation, mild aperients should be preferred, and employed to preserve a lax state of the bowels: the sub-acid tropical fruits frequently answer this purpose mildly and effectually; if they do not succeed, there are various remedies in the Pharmacopœia, some of which, as the tamarind, and castor-nut, are indigenous in the tropics, and proper for use.

Fruits that occasion diarrhœa, should be avoided. I would recommend the parenchymatous substance of oranges, pompelmus, and all tropical fruits, to be rejected from the mouth, after the juice is expressed; for, if swallowed, it is indigestible, and occasions flatulence and diarrhœa.

Dry shirts and linen should be put on at the hour of rest, and night trowsers should be worn to prevent the bad effects of evaporation from the abdomen, or the application of cold to its surface: perhaps the wearing of flannel round the abdomen would be the most efficacious preventive.

Let the newly arrived European avoid sleeping in a current of air, or openly exposed to the atmosphere, but let him sleep in as cool, well-ventilated a chamber as he can obtain.

Wet linen or clothes should not be allowed to evaporate or dry on the body, and consequently they should be changed at all times.

If the cautious observance of all prudent maxims for the prevention of dysentery do not succeed, and it becomes evident, from frequent recurrences,—that a predisposition is fully established, the unfortunate sufferer should be advised to return to his native climate, and to embark for Europe by the first opportunity.

It remains to be observed, that our charming country-women, who emigrate to India and other tropical countries, enjoy a much greater exemption from dysentery and other acute diseases, than the males; and it is no inconsiderable argument in favor of the justness of the explanation I have offered, of the manner in which the causes I have suggested induce a predisposition to dysentery, that their exemption most probably arises from their habits of temperance and abstemiousness; their seclusion from the sun; their domestic retirement during the day; their sedentary life; from avoiding imprudent exposures to the air at night; from not being subject to accumulations of perspiration around their abdomen; and from their immediate adoption of light dresses and other healthy customs. If calomel were less employed by them as a common purgative, they would, in this circumstance, find an additional source of health, or of immunity from disease.

The ladies, in truth, generally avoid those causes, which excite the inordinate action of the heart, arteries, and capillaries of the skin; which debilitate the stomach; stimulate the liver; derange the intestinal canal; and check the perspiration.

Section II.—*On the remote Causes.*

From what has been said on predisposition, the reader will be prepared to infer, that checked perspiration is the most general and usual remote cause of dysentery: I have seldom observed it to prevail, without being able to trace it to this cause.

The situations, in which the disease has been observed to occur most frequently, and the periods and seasons of the year in which it is most prevalent, will support and fully justify the inference. Thus, dysentery occurs more frequently in marshy grounds and among paddy fields, than in dry or sandy soils.

Those who lay off in ships, or reside or encamp near the mouths or courses of great rivers, that, at particular seasons, inundate the adjacent country, by irruptions over their banks, are subject to dysentery, more especially during the periods that the waters exhale.

When we lay off the mouths of the Guadavery, at Coringa Bay, on the coast of Coromandel, in June, 1808, the night dews from the marshes were heavy and cold, and several very severe cases of dysentery occurred.

Dysentery is frequently met with among Europeans who are on shipboard, in those situations, where the stream, or the waters of a river are diverted from their natural channel at high water, for the purpose of irrigating the neighbouring paddy fields, as in various parts of the Houghley, in Bengal; at Whampoa, in China; the second bar; and along the whole course of the river of Canton: it is observed, that the night exhalations or dews in these situations are cold and heavy.

Dysentery is prevalent on the coast and shores of woody and uncultivated countries, as on the coast of Sumatra, where it is reported, from an actual register, that 365 showers of rain fall annually, and where the land-winds at

night blow over the shores and towns, charged with the damp and noxious vapours arising from situations and soil in the interior, so shaded by woods and tangled thickets, that the sun never penetrates them.

In situations such as those described in the preceding paragraphs, thick dews generally arise in the night and precipitate in considerable quantities; hence, if any Europeans are imprudently exposed to them, especially if the perspirative vessels have been previously excited to inordinate action by spirituous liquors, or violent exercise, it is not difficult to understand, in what manner they become the cause of checked perspiration.

The rainy seasons, in India and the tropics, are the most remarkable for producing dysentery and other acute diseases, probably from the effects of damp exhalations.* They are, in general, preceded by hot and dry weather, and during those seasons, the days that are exempt from rain, are, in general, hot, sultry, and subject to calms.

In the hot and dry seasons, dysentery is met with, but its attacks are then less frequent, less violent, and less dangerous, than during the rainy season.

The rains in Bengal and Bombay generally terminate in September, but during the month of October, after the cessation of rain, the heat of the sun produces copious evaporations from the wet soil and pools of rain that have been formed, which, at night, fall in heavy dews, that are con-

* This accords with the opinions of authors, who have written on dysentery as it occurs in Europe and other parts of the world.—*See Sir J. Pringle, Moseley, Fergusson, &c. &c.*

sidered very unhealthy; because it is observed, that fevers and dysentery are actually more prevalent during this, than any preceding month of the rainy season.

The air, during the rainy season, is often hot and sultry, and renders light dresses necessary; these are easily penetrated with the heavy showers of the tropics, are made wet through in a few minutes, and the evaporation from them becomes a cause of checked perspiration.

Dysentery was most prevalent among the Belliqueux's people, at the Cape of Good Hope, in the month of January, 1806, one of the summer months in the southern hemisphere, when it was hot by day, when the winds blew fresh and strong from the table mountain, and the night dews were heavy; at Madras, in the months of April and May, 1806, on our first arrival in India; at Trincomalee, in October, 1806, during the rainy season; in the China seas, in August, 1807, when we experienced severe gales of wind and much rain; at Malacca and Prince of Wales's Island, during the rainy months of October and November; in Coringa Bay, in June, 1808, as already mentioned; at Bombay, and on the coast of Malabar, during the rainy months of May, June, July, and August, 1809; in China, during the winter months from November to February and March, 1810, 1811; and of all these situations, at the periods mentioned, I consider Bombay and the coast of Malabar, during the rainy season, the most productive of dysentery; but Bengal and the banks of the Hooghley, are said to be equally unhealthy at this season.

The periods of dysenteric attacks and relapses, I have observed to be more common at the "plenilunar and novi-

lunar periods, than at the interlunar intervals; but whether the increased attraction of the moon, at the change and full, has any *direct* power in producing diseases, I believe, will never be satisfactorily determined; and, notwithstanding the ingenious hypothetical explanations of Dr. Balfour, Dr. Darwin, and others, I am induced to conclude, that it has only an *indirect* influence or power, by the changes which it occasions at those periods on the atmosphere and winds; for the prevalence of fresh winds, strong gales, and showers of rain, has been observed to be much greater at these periods of the moon, than at the interlunar intervals, and these, by checking perspiration, produce effects on the constitution excitive of many acute diseases, which have been in part ascribed to the direct agency of lunar attraction, on the fluids of the body, by supposing that it decreases the gravity, and diminishes the stimulus, of the particles of blood.—*Zoonomia, sect.* xxxii. 6. 1. Thus much is certain, that a register was kept by me of all the diseases that occurred, during five years, in India, and having carefully noted the various periods of the moon, at which they were induced, and the different states of the weather, I arrived at this conclusion: that dysentery and all acute diseases in the oriental tropics were most frequently induced at the plenilunar and novilunar periods, if lunar attraction (with other causes) produced, at these periods, fresh gales of wind and rain; but if neither fresh gales nor rain, nor any unhealthy changes of the air or weather were induced at the plenilunar or novilunar periods, they were not particularly remarkable for the induction of disease.

In predisposed habits, violent diarrhœa sometimes induces, or is succeeded by, dysentery. Cases of this description are not frequent, but are generally violent, and

those, most subject to the disease from this cause, are patients who have not long recovered from a preceding attack. Among those so affected, I have seen it succeed to a repast of any indigestible food, passed through the intestines in its entire state, and the parenchymatous substance of fruit having been observed to induce these diseases, should, on this account, never be swallowed.

Hence undigested food and fruit may be considered remote causes of dysentery. Constipation is sometimes, though rarely, a cause of mild dysentery. The bilious diarrhœa or flux is sometimes, in its progress, attended with dysenteric secretions, excited by the stimulus of vitiated bile, &c.; but this is symptomatic, and occurs less frequently than when Mr. Curtis was in India, from the improved mode of treating bilious increased secretions: it occasionally induces dysentery.

Symptomatic dysentery occurs occasionally in chronic hepatitis, and chiefly assumes the chronic form.

Scurvy is a cause of a distinct kind of dysentery, which must be separately considered.

Are there, on record, any positive proofs of oriental dysentery having been communicated by contagion?

CHAPTER VII.

Section I.—*Of the proximate Cause.*

It is presumed, that the proximate cause of dysentery is the same as the proximate cause of inflammation in general: for, we think, the ultimate morbid effect of the successive derangements produced by the remote causes can be traced to an inflammatory or increased action of the arteries and minute vessels of the diseased portion of intestine.

That dysentery is attended with analogous symptoms and action of vessels, and is followed by similar consequences as inflammatory action of other parts and organs of the body, admits of highly probable proofs from analogy, and of positive ones from dissection.

Thus, in the description of symptoms, especially of the inflammatory variety, a derangement of the organic functions; a constant, fixed, and acute pain, attended with hard, full pulse, and fever; and the inflammatory buff on the blood extracted, have been observed in dysentery, as they have in inflammations of other internal viscera.

The dissections of those, who have died of dysentery, disclose an organization of new sanguiferous vessels on the intestines, or a new modification or extension of the old and

the seriferous, enabling them to transmit red blood, producing a consequent enlargement of parts, and displaying swelling and redness, similar to what is observed in inflammation of external parts and internal organs.

No local increase of heat is, however, distinguishable by our sensations, unless the rectum become inflamed; in which case, increased heat is felt, and the swelling and redness around the verge of the anus and of the rectum are as evident as in inflammation of external parts.

Dissections disclose the terminations of the inflammation of dysentery, in visceral adhesions; ulceration; abscesses, surrounded with an areola of vessels carrying red blood; and in mortification or death of parts, similar to what has been observed in the terminations of inflammation of external parts, and internal organs.

These are the proofs of inflammatory action of vessels being the proximate cause of many cases of dysentery, as of inflammation in general; to which may, with great propriety, be added, the benefit of a treatment similar to what is adopted in other acute inflammations, and the induction of the disease from similar remote causes. "The resemblance of diseases really consists in the agreement of their "proximate cause, whatever that may be; and as remedies "cure diseases only in so far as they remove their proximate causes, we must therefore consider those diseases "to be of the same nature, which are cured by the same "means. This method of reasoning is certainly of great "use in indicating the similar nature of inflammatory diseases, which are cured by blood-letting, &c."—*Dr. Cullen's Preface to his Nosology.*

Particular analogies between dysentery, and inflammation of other internal organs, will be adduced in the section on bleeding.

But, unless it be permitted us to extend the term inflammatory to every increased action of the capillary vessels of secreting membranes, attended with a morbid and increased secretion, and accompanied with less degrees of pain, without fever, or of pain only, when their usual contents are passed through them, then the inflammatory action here assigned is not always the proximate cause of dysentery; for, in mild cases, the severe symptoms of internal inflammation—constant, acute, and fixed pain, with hard, full pulse, and fever, do not exist; and as recoveries are generally effected, dissection cannot disclose those appearances, which would be admitted as established proofs of the previous existence of inflammatory action. Yet, cases, which at first are mild, by progression, sometimes become severe or inflammatory, and display all the symptoms of inflammatory action, and, therefore, the mild symptoms might be considered as minor degrees of inflammation, as we often observe slight external inflammations to exist, unaccompanied by fever or constant pain, or much derangement of function.

Those, however, who do not chuse to admit inflammatory action to be, in all cases, the proximate cause of dysentery, may, in mild and less severe cases, still call it an increased and morbid excretion of the capillary vessels of the intestines, although it is, assuredly, equally philosophical to denominate this action in dysentery inflammatory, as it is the action of the minute secreting vessels of the urethral membrane in gonorrhœa, or of the membranes of the bron-

chia and nose in catarrh; for, in mild cases of those diseases, the pain accompanying them is not constant and acute, nor accompanied with fever, or hard pulse; nor are recoveries often doubtful.

That, in mild, and consequently in all cases of dysentery, there is an increased and morbid action of the secreting vessels of the diseased intestines, admits of proofs, by observing the evident effects, and comparing their state in disease with their action in health.

When the action of the vessels secreting intestinal mucus is performed with health and energy, there is no more secreted than is necessary to defend the intestines from an undue stimulus of their contents, and to impart a certain property and smell to the fæces, none is observable in the evacuations, nor does it excite the rectum to tenesmus, or occasion tormina. In dysentery, the excretions often consist wholly of mucus and serum, that are highly stimulant, and excite the intestines to very frequent evacuations, and induce tenesmus and tormina. Hence, it is fair to infer, that the excretions are not only increased, but morbid, and occasion tenesmus, tormina, &c. for when they are discharged (and nothing else appears in the evacuations) those morbid actions cease, and are not excited by the same cause, until they have been again accumulated; and when examined, they evidently differ in appearance and quality from the healthy mucus of the intestines.

The proofs of inflammatory action in severe cases having been adduced; and of an increased and morbid one in milder cases, which it is proposed to consider as a minor degree of inflammatory action; it will be proper to examine

into some of its effects on the intestines, and to endeavour to explain some of the phenomena attending this disease.

Section II.

On some of the Phenomena of the Disease.

Many of the effects of inflammatory action have been already brought under our observation, in order to prove its existence; for instance, the pain, hard pulse, fever, derangement of function, increased secretions, production of new arteries, and swelling. The swelling or thickening of the intestine is a very prominent and important consequence of this disease, and is induced to a greater or less extent and degree, in proportion to the greater or smaller degree of inflammatory action present. By the production of larger blood-vessels, and the consequent thickening or tumefaction of the intestinal coats, the inflamed part of the canal is diminished in its diameter and circumference,* *i. e.* its calibre, and consequently offers an insuperable impediment to the passage of fæces of their natural volume and hardness; as in cynanche trachæalis and laryngæa, the windpipe is contracted, and will not admit its usual volume of air to pass.

A morbid increase of sensibility is evidently induced in dysentery, as a consequence of inflammatory action; for, in health, the fæces are transmitted through the intestines by their peristaltic motion, without producing any sensa-

* This contraction or diminution of the canal, should have been more particularly noticed in the chapter on dissection.—*See Dr. J. Hunter, page* 186.

tion that attracts our attention, and when arrived at the rectum, an uneasy sensation, after an indefinite time, excites it to the expulsion of its contents; but, in dysentery, the transmission of fæces or wind, or of morbid secretions, through the diseased portion of intestine, (whether it be colon or rectum,) induces very considerable, and sometimes exquisite, sensations of pain at the period of their passage, which are unceasing until the painful stimuli be expelled.

A morbid increase of irritability is also induced in dysentery, as another consequence of inflammatory action; for the peristaltic motion of the intestines, and the transmission of their contents, in health, are performed without our consciousness, by the stimulus of the fæces, (except in the rectum at the period of expulsion,) and the fæces can be retained in the cells of the colon or in the rectum, a considerable time, without producing any perceptible irritation: but, in dysentery, the diseased portion of intestine receives immediate irritation (of which the patient is conscious) from the presence of fæces—its usual stimulus; it will not admit of its retention for any long period, and it commonly becomes instantly excited to contraction by the presence of fæces and wind, and very frequently, by the morbid secretions that are thrown out into the intestinal canal; these contractions are often violent and spasmodic, and seldom cease until the morbid secretions or fæces be entirely evacuated. The diseased intestine, too, is often thrown into sympathetic irritation by the stimulus of any warm fluid, &c. taken into the stomach. Another consequence of inflammatory action, which appears on dissection, is an ulceration or excoriation of the internal membrane of the intestines, which, in all probability, still further increases their sensibility to pain, and their susceptibility of irritation from stimuli.

One effect resulting from the morbid sensibility and irritability of the intestines, which are excited into irregular action both by the morbid secretions and by what is their natural stimulus in health, is a spasmodic action of their muscular coat, and of the muscles with which their action is associated in health; thus, a violent and unrestrained action of the abdominal muscles and diaphragm is combined with the spasmodic action of the intestines, in expelling the dysenteric secretions and excrement, constituting tormina; and the expulsion of the fæces or secretions is followed by a spasmodic action of the sphincter ani, rectum, and the muscles associated with them, and produces tenesmus.

The muscles of respiration, too, are often associated in spasmodic action with these muscles, as is evident from the person holding his breath, or making a long inspiration, and a short expiration, at the time of expelling the fæces, or acrid secretions, or during the tormina and tenesmus.

This morbid sensibility and irritability of the intestine will dispose its muscular coat (as inflammation does other muscles,) to resist any distention or extension beyond its quiescent state, or that state it is in, when not distended by fæces; nor will the gut admit of distention without the induction of pain. Now, a certain degree of permanent contraction (as it is termed) of the muscular coat of the intestine will take place gradually, if it be not distended to its natural size in the usual manner by the fæces, which are equivalent to the extensor muscles of other moving organs; for it is well known that muscles, which remain a long period in a state of contraction, without being extended by their antagonists, will become permanently contracted, as is evident in the contractions so often seen of

the locomotive muscles, and of the circular muscles in strictures of the œsophagus and urethra;* and I believe muscles assume the disposition to permanent contraction as soon as they cease to be extended or distended as usual. This contraction† still further diminishes the capacity of the diseased intestinal canal, and has its share in producing what is probably the state of constriction, that Dr. Cullen has called the proximate cause of dysentery, but which is, in fact, a consequence of the effects of inflammation.

From the tumefaction of the coats of the inflamed intestine; from its morbid increase of sensibility and irritability; from its resistance to distention; from the permanent contraction or constriction ensuing from the diminished volume and force of its extensor; and from the pain and spasmodic contractions which take place when the morbid secretions, excrements, or flatus, are transmitted through it;‡ it follows, that the natural capacity or calibre of the diseased intestine is so diminished, that the fæces, formed of their natural size, in the healthy portion of the intestine, cannot be transmitted through the diseased and diminished parts of the canal, until they be reduced to a liquid or semifluid state; and it is from this change of structure, &c. that I would principally account for the very obstinate constipation that takes place, in the very severe and inflammatory varieties of dysentery; for the different degrees of constipation in the less severe; for the very rare appearance of

* This is also particularly exemplified in the muscles of an arm, after a fracture of the humerus, followed by an overlapping of the fractured ends of the bone.

† Dr. J. Hunter, speaks of a "considerable contraction of the passage, &c."—*page* 186, *Jamaica Diseases*.

‡ See the preceding paragraph of this section.

scybala in tropical dysentery; for the continued diarrhœa or discharge of loose fæces in the chronic stage; and for the small diameter and volume of the fæces, which are transmitted of sufficient consistence to shew the contracted circumference of the canal, through which they have rapidly passed.

It appears from the following aphorism of Boerhaave, that some effects of enteritis are similar to those, which I have described as occuring in dysentery: "Nata* his locis, contrahit intestina; cavitatem claudit, transitum appulsi impedit."—*Aphor.* 960. *on Enteritis.*

The spasmodic contractions of the abdominal muscles, the diaphragm, and other muscles of respiration, and of the muscular coat of the intestines in tormina; and of those muscles and the sphincter ani in tenesmus, which occur when the morbid secretions, fæces, or wind, are transmitted through the diseased portions of intestines, and then only, have probably laid the foundation of the doctrine of stricture, adopted by Mr. Milne, the latest author on oriental dysentery. Mr. Milne thinks, that the stricture of the intestine "exactly" resmbles the "stric-"ture of the urethra," as described by Mr. Home; "that "it is the cause of all the symptoms," and appeals to "dissection, as the indisputable evidence, and most convincing proof, of the doctrine." I shall briefly remark, that Mr. Milne has not confirmed his "appeal" by adducing a dissection in his work; that I have never seen such a state of the intestinal canal on dissection; nor do I know of any author or person, whose dissections have enabled him to

* *i. e.* Inflammatio intestinorum, of which he is treating.—*Vide Aphorismi ab H. Boerhaave, p.* 218.

describe a state of stricture, which corresponds with the accurate description of it given by Mr. Home in his Treatise on Strictures of the Urethra.—*Mr. Milne's Letters to Dr. Hunter, pages* 134–137. Permanent stricture of the urethra or intestine is the work of time and previous disease —dysentery is induced in a few hours. No inconvenience or dangerous symptoms attend the early stages of stricture for months, or even years;—dysentery is attended by both. Nor does it resemble the spasmodic stricture, for it is not (like dysentery) attended with a discharge of mucus, serum, and blood from the urethra, nor is the part affected with stricture, commonly inflamed.

If any one will attentively compare the symptoms of dysentery with colica spasmodica, he will, in all probability, refer the former to inflammatory action, and the latter most assuredly to spasm, and would not discover much resemblance between a spasmodic and an inflammatory disease.

I know of no reason for the adoption of the term "putrid "dysentery," *(Clarke's Observations, page* 319,) as I have never observed symptoms of putridity, except in scorbutic dysentery, to which he does not refer; and in cases of mortification of the gut, in consequence of inflammation, or on the two or three days preceding the termination of fatal cases.

In the history of symptoms many of the phenomena were explained, and many referred to the laws of sympathy.

CHAPTER VIII.

ON THE TREATMENT OF DYSENTERY.

In hoc corporis affectu, aliquod certi in medicina opus est, haud multum naturæ beneficio.—*Sir Geo. Baker, Bart. on Dysentery.*

Section I.—*Of the Indications of Cure.*

Dysentery has been already distinguished into the acute and chronic. The chronic is universally a consequence of acute dysentery, or a continuation of it in a milder form,* but more especially a consequence of the severe and inflammatory varieties. Acute dysentery always precedes the chronic; but does not necessarily become so, as it frequently terminates in a perfect recovery of health.

The indications of cure in acute dysentery, are, to reduce or subdue inflammatory action by general and topical bleeding and those remedies that diminish the frequency of the pulse, and to restore the lost balance of the circulation, by increasing other secretions and excretions, but more especially of those organs, glands, mucous membranes, and capillary vessels, whose actions and functions are associated with the diseased intestine;—of the healthy intestine by cathartics; of the skin by sudorifics and recumbent posture; of the bladder by diuretics and diluents; of the liver

* It will be necessary to except from this general statement those chronic cases that occur from specific causes, as scurvy.

by calomel; and of the salivary glands, if necessary, by mercury, the action of which is peculiarly powerful and efficacious in reducing minor degrees of inflammation. Besides these indications, constipation must be speedily and effectually removed, and palliative remedies be employed for particular symptoms. The utility and propriety of some of these remedies must be distinctly considered.

Section II.—*Of Bleeding.*

From the history and explanation of the symptoms, causes, and consequences of this disease, the reader will hardly be prepared to learn, that the propriety of bleeding in tropical dysentery, should be questioned; that a large proportion of medical practitioners in both Indies, not only discountenance the practice, but have never employed the remedy; and, influenced by their opinion and long established practice or usage, many of the old European inhabitants are prejudiced strongly against it. Hence, its recommendation must rest on its merits and utility, and its employment be sanctioned only by its efficacy.

The lancet, in the hands of the intelligent surgeon, "is the first best gift that heaven bestows;" and by its prudent employment, he can often truly boast of preserving the life of a fellow creature, and of obtaining a triumphal victory over an inflammatory disease.

I am able to prove its utility in tropical dysentery by the cases annexed: and I hope to vindicate the principles on which it is employed, by establishing a particular identity

of some symptoms in dysentery and enteritis, which are characteristic of intestinal inflammation, and a further analogy between it and inflammation of other viscera possessed of secreting membranes, whose peculiar functions differ from the intestines. A similarity in some of the effects of diseased action in dysentery and enteritis has been noticed at page 81, and the general and strict analogy between the symptoms and effects of dysentery, and other inflammations, has been pointed out in Chap. vii. To these I have further resemblances to add.

The characteristic symptoms of enteritis are a fixed, acute pain of the abdomen, accompanied with fever, constipation, and vomiting.—*Vide Cullen's Nosology, and Practice of Physic.* Do these symptoms of enteritis occur in dysentery? They certainly do in the inflammatory variety of this disease, and are often accompanied with tumefaction and hardness of the abdomen, and increased pain on pressure, which are additional marks of inflammation of the intestines and abdominal viscera.

If then, in dysentery, a patient should complain of a constant, fixed, and perhaps "acute" pain of a part or of the whole of the abdomen, which is accompanied by fever, *obstinate* constipation, and vomiting; have we not an authority for assuming that intestinal inflammation exists equal to what we should have, if the dysenteric evacuations and tenesmus were not present? The difference, in fact, is merely this, that in simple enteritis there is no increased secretion from the mucous membrane of the intestines, but in dysentery of the inflammatory variety there is enteritis, accompanied with this increased secretion, and, sometimes, slight hæmorrhage. To illustrate from analogy—if any

person were affected with a constant, fixed, and acute pain of the thorax, attended with pyrexia, difficult and painful respiration, and cough, (*vide pneumonia, Cullen's Nosology,)* would not these symptoms be considered as sufficient evidence of pneumonia? but if, in addition to those symptoms, there existed also a copious expectoration of mucus, or of mucus tinged with blood, should we have the less doubt of the presence of inflammation of the lungs or their investing membrane? I think no doubt would be entertained in pneumonia with moist cough; and I trust the analogy of the characteristic symptoms, attended with increased secretions from the mucous membrane in both diseases, will elucidate the nature of dysentery, accompanied with symptoms of inflamed intestine.

The existence of inflamed intestine in one variety of dysentery is, then, deduced from the identity of some symptoms with enteritis; is supported by analogy, and proved by dissection.—*Vide chapter on the proximate cause.*

The practice of venesection in enteritis is inculcated by every teacher of the practice of physic, and every author, and has received the sanction of ages. My experience justifies the employment of it in dysentery, and it should be laid down as a rule of practice, that venesection should be early and invariably employed in all cases of dysentery of the inflammatory variety, where there is a fixed, constant, and acute pain of the abdomen, accompanied by fever and constipation. It is employed with equal propriety and advantage, where the rectum discovers the high state of inflammation described in chap. ii. sect iii.* Great benefit

* In this case, also, leeches around the verge of the anus are peculiarly proper.

is derived from venesection in the formidable cases of the severe variety of this disease, where the symptoms of inflammation are not all present, or very strongly marked: for instance, the tormina may be severe, and *pain be always considerable on pressing some particular part of the abdomen that denotes it is inflamed*, when pyrexia is not urgent; the constipation may be obstinate, and the evacuations of mucus, serum, and streaks of blood may be sometimes frequent and copious, without acute pain, or much pyrexia, and yet a prudent bleeding will, in these cases, arrest the progressive increase of the disease, will rescue the patient from apprehended danger, and prevent a very long chronic stage of dysentery: just as we frequently bleed with advantage in violent catarrh, although all the symptoms of inflamed lungs or bronchia, are not present.

Great prostration of strength is often a peculiar characteristic of inflamed intestine, and from this circumstance, perhaps, Dr. Cullen has termed the pyrexia attending enteritis "typhus fever." *(Nosology.)* Hence, venesection should be employed according to the previous, and not the present, strength of the patient. The quantity of blood drawn should also be always proportioned to its effects on the symptoms. Remission of pain is the object to be obtained, and whether it be attained by the abstraction of a large or a small quantity of blood, is a matter of comparatively little consequence, when the life of the patient depends upon relieving inflammation and his sufferings, and this remedy is the principal agent. Should a recurrence of the inflammatory symptoms take place, general or topical bleeding must be repeated; and it should be remembered, that it cannot be dispensed with, until the inflammatory symptoms be subdued. But, in general, the inflamed state

of the intestine, in dysentery, *has not been found to require such copious or such repeated evacuations of blood for its cure*, as simple enteritis; in this circumstance, also, it bears some analogy to pneumonia, with or without expectoration; for pneumonia without expectoration, (like inflamed intestine without increased secretions,) is more dangerous, and requires more assidnous attention to the employment of copious bleeding, than it does when it is accompanied by free and moist expectoration. One *general* bleeding has been commonly sufficient.

The increased secretions from the intestine, in all probability, have the same effect in abating inflammation, that the mucous expectoration has in pneumonia;* for I have observed, that when the degree of inflammation has been great in dysentery, the proportion of blood, as well as of the excretions, has been more considerable and copious in the intestinal evacuations; and as inflammation of the lungs has been sometimes relieved by a spontaneous hæmorrhage from the bronchia, so also I have known the quantity of pure blood discharged in a constant, small stream, from the rectum, to carry off the inflammatory symptoms of dysentery. It is hoped this statement will not induce any one in practice to defer the employment of venesection, in expectation of a very rare and spontaneous exertion of Nature; for less injury will be done to the constitution by the abstraction of blood from a vein in the arm, than will be inevitably sustained by the diseased action of blood-vessels, and an hæmorrhage from an organic part so essential to the support of life, as the human intestines; besides, in pneu-

* Perhaps this may be the reason, why inflammation of the mucous membrane is relieved by a smaller loss of blood, than inflammation of the parenchyma of a viscus.

monia, bleeding is not delayed, from any vague anticipations of benefit from spontaneous discharges of the bronchia.

A strict and *early* attention to bleeding, and the antiphlogistic regimen, is more particularly indispensible and necessary in the inflammatory diseases of hot and tropical climates, than of the temperate zones; for inflammation advances with more active rapidity to suppuration and mortification in a hot, than it does in a temperate climate; and consequently gives less time to the practitioner to suspend or arrest its progress, and counteract its effects. This observation has been made by Dr. Lind, *(On Diseases of Hot Climates,)* and the fact must be acknowledged by every experienced tropical practitioner. The disease is not easily conducted to the termination by resolution in a tropical climate, without judgment in the choice, and promptitude in the administration, of remedies; " principiis obsta" should be the maxim; and resolution should be accomplished in twenty-four or forty-eight hours, or it may be justly apprehended, that the proper period for its attainment will, in many cases, have past. I have seen suppuration complcated in inflammations of external parts in twenty-four hours, and many cases of dysentery terminated fatally from the second to the fourth and seventh day, before I employed venesection, as the principal agent in my practice, in inflammatory cases. Mr. Christie relates, that two " highly inflammatory cases terminated fatally on the " fourth and fifth day."—*M. & P. Jour. No.* 4, *p.* 350.

I shall now endeavour to obviate some of the objections offered, and to combat the reasons alleged, against the practice of bleeding in tropical dysentery.

It is said, that "the European constitution will not bear "the evaeuation of bleeding in India."* Practieal experience has convinced me that it will; indeed it is sometimes reeommended to prepare the constitution for assimilation to the climate; and it is notorious, that abstemiousness, temperanee, and the frequent use of eatharties are employed by European residents, to prevent plethora, espeeially of the hepatic system. Some, who urge the objection, have declared, "that they have never wet a lancet in India;"† from which, it must be plainly inferred, that their judgment has not been formed in the unerring school of experience; thus proving, that a position admitted by the mind, without examination, ean, by habit, influenee it as much as the authority of an established faet. In medical science, all reasoning and hypothesis must yield to the results of experience, and deduetions from faet.

The faet, then, overthrows the objection. I have employed venesection not only in dysentery, but in hepatitis, and other internal and external inflammatory eomplaints in the East and West Indies, with the most happy results;‡ I have never experienced any bad effeets from its use; but, on the contrary, have been so fortunate as to obtain resolution in every ease of aetive hepatitis; and, during the last three years of my oriental practiee, to lose only one patient in the aeute stage of dysentery, and he did not apply for medieal advice until the third day of the disease, when venesection, and every other remedy employed, only proeured

* See this section sub finem.

† Ditto, and Monsieur Houric's case.

‡ Is is not our sheet anchor, our principal remedy, in the cure of the causus, or yellow fever, when had recourse to within the first eighteen hours of attack?

temporary relief, but did not arrest its fatal progress. Some naval surgeons, who adopted the practice, employed it with success, and I know, from conversation, that a few respectable authorities at the different Presidencies of India sanction it. *Let it be remembered, that the majority of Europeans in the tropics die of inflammatory disorders in a few days.*

In some cases, as in Emanuel Joseph's,* this remedy employed early with cathartics and diaphoretics, has quickly put an end to the disease, has prevented the chronic stage, as well as the necessity of exciting ptyalism, by persevering in the use of mercurial preparations, and, instead of the practice inducing an unnecessary or dangerous degree of debility, the patient recovered with less diminution of strength and flesh, than is usual, when bleeding is not employed, and certainly with much less than the great degree of weakness and emaciation ensuing from a long continued chronic stage.

In dysentery, it happens, that a certain degree of debility must be induced, either by the antiphlogistic regimen, or by the protracted disease gradually exhausting the animal and vital powers: hence, it is thought preferable to induce a certain degree of it at once, and thus put a speedy termination to the disorder, and prevent the distressing, and sometimes fatal, effects of the chronic stage.

In this disease, venesection is said to be injurious by Dr. J. Clark, *(Section of his Observations on Venesection, &c. in Dysentery, p.* 324, 325,) and probably his authority

* See the cases.

has given rise to the neglect and omission of the practice. He admits, that "no evacuation is better calculated for the "relief of the patient, when the disease is accompanied "with a fever of the inflammatory kind. But in hot cli- "mates, fluxes being either of a chronic nature, or accom- "panied with a low fever, the strength of the patient sinks "from the beginning." It is granted, that there is a peculiar sensation of debility, the companion of the very severe and inflammatory varieties of dysentery, resembling what occurs in enteritis, and this sensation is maintained and increased by the constant dysenteric evacuations, the severe pains, the want of sleep, and the exhaustion of the sensorial power in the sensitive and irritative motions: but as no judicious practitioner is deterred from bleeding, by the peculiar sensation of debility attending gastritis and enteritis, so let no one be deterred from employing it in the inflammatory forms of dysentery. It has been already remarked, that the chronic stage is generally a sequela to the severe and inflammatory varieties, if their acute stage be not arrested and cured. If bleeding be not employed in the inflammatory variety, either death or a very long chronic stage, almost invariably ensues. Hence bleeding very often does away with the "chronic nature of fluxes." I have not observed, that the "fever" which accompanies dysentery is particularly "*low;*" however, Dr. Cullen, in his *Nosology*, has enumerated "typhus fever," as a characteristic symptom of enteritis, but he nevertheless recommends bleeding for its cure.

Dr. Clark disapproves of the practice of venesection in dysentery in these terms:—"To lessen the quantity of "blood, could only serve to impair the patient's strength; "and if it did not immediately prove fatal, would, at least,

" precipitate his fate." The test of experience has fortunately demonstrated this assertion to be incorrect, and the alarming prediction to be absurd. The succeeding sentenee will probably persuade every one, that the author has raised his assertion upon the frailest foundation, without deducing it either from facts or experienee, as he has only employed bleeding twice, and this is stated from remembrance only. " *I do not remember to have met with above* " *a case or two, which seemed to require bleeding ;* and " the operation, though performed early in the disease, did " not in the least relieve the patient"—*page* 325. Truth obliges me to declare, that I have never practised venesection without affording relief, even in late periods of the acute stage, *i. e.* on the third or fourth day : and I have invariably employed it, with final sueeess, where it has been duly resorted to on the first day, and generally on the second day, after inflammation has taken plaee. This remark was made some years ago, on reading Dr. Clark's paragraph on bleeding, and the aequired experience sinee that period fully confirms the justness of it.

It is strange that Dr. Clark should so strongly disapprove of this remedy, when he admits that dysenteric patients die of mortifieation, in Bengal, in a few days ; (*page* 321) and when the disease becomes chronie, he attributes it to " in- " flammation, ulceration, and a diseased state of the intes- " tine," (*page* 322 *and* 341 ;) for what remedy is better caleulated to prevent these effects ? as it must be surely admitted, that " mortification, ulceration, and abscess," are consequenees of previous inflammation.

I am fully persuaded, that death will not only be a less eommon consequenee of dysentery, if bleeding be more fre-

quently employed; but that we shall not hear of so many dissections, which disclose abscesses of the liver, intestinal investments, and epiploon; ulceration, and other consequences of inflammation.

Venesection can be dispensed with in the milder and safer forms of dysentery, where the symptoms of inflammation are not present, where the pain is only occasional, and the evacuations are not copious nor frequent; these varieties will, in general, yield to the other remedies employed for the cure of dysentery.

In Mr. Atkinson's "*Observations on the Severe Dysen-* "*tery of India,*" addressed to Dr. J. Hunter, it is stated, "that the mesentery will inflame, suppurate, mortify, or "become scirrhous;" and in the next paragraph, five lines below, he says, "respecting the cure, Dr. Mead says, 'sem- "per primum sanguinem mittere expedet;' but *the adop-* "*tion of such practice* is often pregnant with much mis- "chief, and *is always inadmissible in a hot climate.*" One would expect this sweeping observation to be supported by incontestible facts; the reverse, however, is the case! for the succeeding words are, "I never saw inflammatory symp- "toms so urgent, as to require particular attention."—*Med. and Phys. Journal, for June* 1804. Consequently, Mr. A's experience has never furnished him with a case of the inflammatory variety, in which death is almost inevitable, if bleeding be not employed; nor has he told us where or when "the practice was attended with much mischief." When "inflammatory symptoms are present," though not "urgent," I am borne out by facts, in saying, Dr. Mead's rule would be beneficial, if observed in practice, as it ought to be.

In the last edition, I expressed myself astonished and shocked to find blood-letting in hot climates condemned "as *a pernicious error;*" as a *deleterious practice*, and as "*an evacuation injurious in all diseases,*" by *Dr. C. Maclean, Lecturer on Diseases of Hot Climates to the Hon. East India Company*, who declares, "That blood-"letting is an operation, which ought *never, under any* "*circumstance, or in any situation*, to be performed," and that his "Observations were almost all written a *great many* "*years ago*, in the East Indies!!!"—*See Results of an Investigation, &c. vol.* ii. *preface* xi. Surely, with these sentiments, Dr. C. Maclean cannot have tried it, and, with every deference, I submit to him the "Results" of the cases annexed to this work.*

Section III.—*Of Cathartics.*

Cathartics are most important medicines in dysentery, as they are not only absolutely necessary to remove the constipation attendant upon it, but are highly useful, by exciting an increased secretion from the mucous membrane of the healthy intestine: they should be directly exhibited in every case of dysentery, with the single exception of those cases, which are immediately preceded by a copious diarrhœa, and, then, some respite from their use may be granted.

* As Dr. Maclean has been in Egypt, I would refer him to Lib. ij. cap. vij. Prosperi Alpini de Medicina Ægyptiorum, in which he will find, that "Alexander Trallianus, Ætius, atque alii *multi gravissimi medici,*" were of opinion with him, "*Optimum* esse remedium dysentericis, mo-"dicam sanguinis evacuationem."—He also argues with me, that "si "non mittatur sanguis, atque eo modo statim in principio divertatur "fluxus ab intestinis," much more blood and strength will be expended, "perseverante illo affectu," than if bleeding be employed. He also mentions two cases cured by bleeding alone, "*sola* sanguinis missione."

Of the different modes of exhibiting cathartics, that by draughts should be employed in all cases, when the stomach will retain them; but when the stomach is irritable and is stimulated to the action of vomiting by any or every fluid swallowed, the form of pill or bolus should be always preferred, and the exhibition of them made a rule of practice.

It is not necessary to delay the use of cathartics for the purpose of administering an emetic, as that remedy is unnecessary, except in cases where there is great oppression and nausea, with a sense of a load at the stomach, unaccompanied by vomiting, and then antimonium tartarizatum and pulvis ipecacuanhæ may be given in a full dose.

As the greatest benefit obtainable from cathartics will be derived from their speedy and full action, and from their producing such watery stools as will pass easily through the inflamed part, those medicines which produce these results the soonest should very obviously be preferred. I think the liquid cathartics act most speedily, and the most active and useful of them, are the neutral salts, such as sulphas magnesiæ vel sodæ, with a minute portion of antim: tartariz:* dissolved in infusum sennæ, and administered in conjunction with hydrargyri submurias. In a few constitutions, oleum ricini proves the most speedy in its operation. The most useful of the dry form, are, pulvis jalapæ, and extractum colocynthidis co: in conjunction with submurias hydrargyri.

If hydrargyri submurias, exhibited alone, were uniform in its operations, and did not differently affect constitutions

* See Sir Gilbert Blane, on Diseases of Seamen, page 593, 3d edit. who dissolves and administers those medicines in gruel.

possessed of different susceptibilities with respect to its agency; it would have an unexceptionable advantage over the other purgatives, because it would serve the triple intention of evacuating the bowels; of exciting an increased secretion of the liver; and of assisting in the induction of ptyalism; but it must be allowed, that its cathartic action is uncertain, as it frequently fails to purge at all, and sometimes purges copiously; hence, other cathartics should be always combined with it; if it be long persisted in, in large doses, it sometimes occasions a too redundant bilious secretion and a too copious ptyalism; yet its general advantages greatly counterbalance the occasional irregularities of its action, and it should be always employed in combination.

The extr: colocynthidis co: cannot be depended upon so much as pulv: jalapæ, and the other purgatives mentioned, for it does not possess the same active powers in a tropical climate, that it is said to display in Europe;* and from the little purgative effect displayed by it, in many cases, I do not doubt the account of Sonnini, who states, that a drachm of coloquintida, aloes, and a gum, are the common dose of physic prescribed to the Egyptians.—*Travels in Egypt, vol.* iii. *chap.* xxviii.

When it is decided, that cathartics are proper and should be administered, let it be also remembered, that however great the quantity given, they must not be discontinued, until their purgative effects be produced, *and in all cases,* this should (if possible) be accomplished in *twelve, or at farthest, twenty-four hours,* for the obstinacy of the con-

* It is recommended, in the Edinburgh Dispensatory, as a safe and sure purgative, that may be always confided in.

stipation generally bears its proportion to the severity and danger of the disease.

It may surprize some of my readers to learn, that a purgative result is as difficult of attainment in some cases of tropical dysentery, as in the colica spasmodica or dry belly-ache. By perseverance in, and disappointment from, the use of cathartic medicines for many hours, the patience of the sufferer may be almost exhausted, and the resolution of the practitioner to persist further may sometimes waver or be shaken, but they must never be abandoned; and although he be for a time foiled, he must pertinaciously persevere in their use, until the intestines be emptied: nor should the administration of purgatives be interrupted, with a view of gaining a respite from pain, by the use of opium. I should not insist so strongly on the necessity of resolute activity, had I not observed the fatal effects of an indecisive and temporizing practice.

At the Cape of Good Hope, on the passage, and when I first arrived in India, I adopted Mr. Milne's* plan of exhibiting "from eight to twelve grains of calomel," morning and evening, or thrice a day, until it salivated and purged, to which, however, from its uncertain operation on the bowels, I soon added pulv: jalapæ ℈j ad ʒss, and sometimes, ol: ricini or sulphas magnesiæ, ℥j; these medicines, "with Mr. Milne's mercurial friction," fulfilled the intention of purging in many cases; I met with one at length, in which they did not purge till the third day, and the patient died on the fifth, thus announcing the unfitness, inutility, and danger of this indecisive practice, in

* Then the most modern author on India Diseases.—*Vide page* 138-9, *of Letters addressed to Dr. Hunter.*

some bad cases: for, in the year 1806, three men fell a sacrifice to it, as its purgative effect did not ensue till the third and fourth day, and ptyalism was not excited by this copious use of mercury. Since that period, I have conducted the administration of cathartics in the following manner.

After bleeding, if necessary, and if the stomach be not irritable, or affected with vomiting, I prescribed a pill from 3 to 10 grains of hydrargyri submurias, most commonly of 6 grains, to be taken directly with an ounce and a half of neutral salts, dissolved in inf: sennæ, with a little antim: tartariz: and direct a pill of 3 grains of hydrargyri submur: and 3 of ipecacuanha with a little ol: menth: pip: to be taken regularly every six hours. If fæcal evacuations be not induced in four hours, half an ounce of neutral salts dissolved in inf: sennæ, vel aq: men: pip: are to be given every hour, till they operate well. Should this method not succeed in nine hours, I repeat the pill and draught first prescribed, and continue the draught with half an ounce of neutral salts, every half hour, till it has acted copiously, provided the stomach will bear it, but if it become loaded and oppressed by the largeness of the quantity, as sometimes happens, it will be necessary to suspend its use for two or three hours. If the constipation continue twenty-four hours, the pill and draught are to be renewed, and the same treatment continued, without allowing any interval of time to wait the effect of medicine, and it may be even necessary to repeat the small draught every quarter of an hour, if the stomach be not oppressed with its quantity.

Should the oleum ricini be preferred, on account of some peculiarity of constitution, or of other cathartics disagree-

ing, it should be prescribed in a large dose with hydrargyri submurias, and the ipecacuanha and calomel should be continued every six hours.

If the oleum ricini agree, it should be repeated as often as necessary, until it operates. I apprehend, that the stomach will not bear repeated doses of this medicine, and, for this reason, I have not urged it, where it has not soon acted, but changed it for another cathartic. Pulv : jalapæ, &c. in draught, can be employed, if judged more convenient or proper. Where the stomach is irritable, and rejects all fluids, no preparation of opium should be administered to "stop the vomiting," or quiet the irritation, although recommended by Dr. Lind, *on Diseases of Hot Climates, page* 251. It prevents the operation of the cathartics, and, as I have experienced, is a dangerous stimulant in the inflammatory and severe varieties. Recourse should then be had to cathartics in a solid form ; and from half to a whole drachm of pulv : jalapæ aut extr : colocynth : co : cum hydrargyri submurias, gr. iij ad x, should be given directly, and if it have not operated in four hours, half a scruple of either should be given every hour, until the bowels be emptied. The pill of ipecacuanha and calomel to be taken every six hours.

If fæcal evacuations be not excited in nine hours, I repeat the original full doses, and then continue the half scruple dose every half hour, until the cathartic have fully operated. If the constipation continue twenty-four hours, the same rules of treatment are to be observed, as have been prescribed in the administration of the fluid cathartics. I have sometimes employed pure aloes, but neither it nor the cathartic extract possess such active qualities as the pulvis

jalapæ; and aloes is objectionable from its being a peculiar stimulus to the large intestines.

If the stomach become irritable during the administration of the fluid cathartics, and reject them; the form of exhibition by pill or bolus should be substituted; and the latter should be employed, where the former fail, and benefit may be rationally expected from a change of medicine. When the pills fail, oleum ricini sometimes agrees and soon excites to action, if only given once, and the pills be continued. During the exhibition of cathartics, their operation should be promoted, and the diseased intestine in some degree defended from acrid stimuli, by warm mucilaginous and demulcent drinks, which will also promote perspiration.

To demonstrate the obstinacy of the constipation, and the necessity of persevering activity, I shall observe, that many cases have occurred in my practice which required six, eight, or ten ounces of sulphas magnesiæ vel sodæ, with twenty and thirty grains of hydrargyri submurias, to produce fæcal evacuations.

In the case of Angus Graham, July, 1807, hydrargyri submur: ʒss, pulv: jalapæ ʒj. were given on the first day, divided into three doses, with a cathartic enema: on the second day, he took ten ounces of sulphas magnesiæ with infus: sennæ, twenty grains of calomel, and eight of ipecacuanha, and on the third morning he had only passed one fæcal stool.

In the case of Robert Allen, June, 1807, in which all fluids were rejected by vomiting, ninety grains of hydrarg: submur: 132 grains of pulv: jalapæ, two drachms of aloes,

and two drachms and one scruple of cathartic extract, (preceded by an emetic,) together with oleum ricini an ounce, were given in two days, in divided doses, such as the stomach would bear, and only procured two fæcal stools on the third day, but on the following day, ten grains of calomel, with a scruple of cathartic extract and jalap, and an ounce of castor oil, procured several evacuations, and the bowels were afterwards easily acted upon by purgatives.

In the mild variety of dysentery, the bowels are generally excited by the first purgative dose, and in the moderate cases of the severe variety, are in general acted upon, by the third or fourth dose of purgatives in diminished quantity.

It seems necessary to remark, that the intestines should be not only early, but *completely, evacuated of their fæcal contents;* hence, the quantity discharged should always be ascertained, to prevent the formation of a vague judgment on the subject; for the patient may infer from the number of his evacuations, that the intestines have been emptied, when, on inspection, the motions are sometimes discovered to be scanty, and to consist only of a small portion of fæces mixed with dysenteric secretions. Indeed, the actual inspection of the excretions is the only certain means of obviating an erroneous conclusion, and is, without doubt, the best method of enabling the patient and practitioner to judge correctly of the actual state of the case. The degree of relief obtained from tormina, of consequent ease experienced in the abdomen, and a sensation of emptiness of the bowels will also assist the judgment; for these generally succeed the complete evacuation of fæces from the intestines; besides these effects, the number of evacuations of

morbid secretions generally diminishes; the fever, nausea, and vomiting, are frequently much relieved, and the patient sometimes falls to sleep.

In the further progress of the disorder, it is not often necessary to repeat the powerful cathartics; should, however, obstinate constipation recur in any stage or period of the disease, the method of obviating it already prescribed, should be resorted to, with any modification that may be deemed prudent; for it seldom happens, that the intestines resist the action of cathartics so much in any succeeding period of the complaint, as on the first days. The intestines are, in general, kept open, after their first complete evacuation, by a continuation of the pill of hydrargyri submurias and pulvis ipecacuanhæ; but, should they become costive or uneasy, or affected with tormina, the mild aperients, as oleum ricini, pulvis rhei, or a moderate dose of neutral salts, should be prescribed, and will generally succeed to our most sanguine wishes.

The oleum ricini is perhaps better calculated to afford relief in dysentery, than any other aperient or cathartic; for its action is not only mild and generally effectual, but I have observed, that some of it passes undecomposed, in its oily form, through the intestines, and appears on the surface of the excrement, and, hence, may serve as a sort of sheather or defence to the diseased intestines, from the stimulus of fæces and morbid secretions.

It remains to be remarked, that the *very* mild and slight cases of this disease, will, in general, admit of a perfect cure, from the use of cathartics, followed by an anodyne aromatic draught: but no form of opium should be taken,

in any case, before the purgatives have operated fully, although, in enemas, it be sometimes admissible and highly proper.

When previous constipation is the remote cause of dysentery, the effect most commonly ceases when the cause is removed; but when small pieces of fetid fæces, not much larger than peas, get enveloped in the mucus of the intestines, and are retained, notwithstanding the fæcal evacuations are frequent, an assiduous renewal of aperients or catharties is necessary, until they cease to appear in the evacuations, and the intestines become easy, and freed from their irritation—*see page* 17. This variety of case seldom occurs.

The induction of hypercatharsis from the free use of purgatives in dysentery, is a rare occurrence, and the possibility of its induction should not deter us from a bold and decisive practice; for where it has been induced, it has been, generally, soon restrained by opiates and aromatics; as in the following draught:

℞.—Confectionis aromaticæ scrupulum dimidium.
Aq: Menthæ pip: unciam eum semisse.
Tincturæ Opii.
Tinct. Lavendulæ comp: singularum guttas viginti vel triginti ft. haustus statim sumendus.

This draught generally fulfils the purpose; but if it fail, let it be repeated with ten or twelve drops of tinctura opii every six hours.

I have never known the *common* stimulating cathartic enemas to procure fæcal evacuations, and it appears to me that such are improperly employed in dysentery; because

they occasion pain and immediate expulsion, when they are injected and reach the rectum and sigmoid flexure of the colon, in a state of morbid irritability and sensibility; at all events, they are useless, as they fail to become purgative, and I have long ceased to prescribe them with that view.

Enemas, composed of starch, or congee, or any bland mucilaginous fluid, and oil, or lard,* appear to act as internal fomentations, and must be allowed to soothe pain for a short time, and sometimes to sheathe the lower intestines from morbid stimuli. An infusion of a drachm of the folia tabaci in a pint of congee, starch, or any other sheathing fluid, is the only admissible purgative enema; this very frequently displays powerful effects in removing obstinate constipation, and in the cases attended with it, where I have prescribed it, if it did not directly induce fæcal evacuations, which it usually does, it disposed the intestines to be acted upon by cathartics, occasioned nausea and languor, promoted sweating, reduced the frequency of pulse, and diminished the acute sensation of pain.

When dysentery succeeds to a copious diarrhœa, anodyne enemas are extremely beneficial on the first day, if tenesmus and tormina be severe; but, in these cases, if it be not deemed necessary to premise an anodyne enema, on account of these sensations, the pill of hydrargyri submurias and pulvis ipecacuanhæ should be prescribed every six hours at once; and if they do not procure fæcal evacuations in the subsequent twenty-four hours, a dose of oleum ricini should be prescribed, which will generally operate effec-

* Celsus recommends the lard of sheep and goats as being preferable to that of pigs.

tually, as mild purgatives usually succeed in the progress of these cases.

The further use of anodyne enemas will be considered in the sequel among the palliative remedies.

Section IV.—*Of Diaphoretics.*

As Dr. Moseley has stated "that the intermittent fever is "not cured with more certainty by Peruvian bark, than "dysentery by diaphoretics;"* as he bestows such strong encomiums on their use, (especially the vitrum cerat: antimonii) in tropical climates; and has so pointedly proved their efficacy in the dysentery of Great Britain; as Mr. Harty, B.M. in his Treatise on Dysentery, has drawn a conclusion, that this disease is cured by perspiration in every instance;† and as checked perspiration appears to be the most general remote cause of the disease, it might be deemed a rational conclusion, that perspiration should greatly relieve or cure it: I must be explicit in my reasons for dissenting, in some measure, from the diffuse praises lavished on these remedies, and for denying them the exclusive privilege of curing this formidable and excruciating disease; although it would, perhaps, be enough to observe, that experience does not support the conclusion, nor justify the encomiums.

* See his "Treatise on Tropical Diseases,"—loco cit.

† As Dr. Harty's work, although a compilation, is much esteemed for the collective mass of information it contains, I think he should have shewn more caution in deducing such a medical doctrine, as it is too apt to mislead the inexperienced, on their debut in tropical practice.

By the increased temperature of a tropical climate, during the hot season, from May to the end of October, a profuse perspiration is generally and constantly maintained on the surface of the body of the Europeans who reside in it. This is observed to be more particularly the case with sailors, who live in a confined and crowded situation in a ship; who are exposed to the sun's rays during their official labour and fatigue; and who sleep along-side each other in great numbers, in a confined space of the width of sixteen inches, and the length of six feet: and with the soldiers in the field and in encampments, where they are crowded in routies or tents, that are frequently permeable to the sun's rays, and are not freely ventilated.

The wealthier class of individuals are in some degree defended from the perspirable effects of increased temperature by the luxurious contrivances of puncas, tats, &c. invented to cool the air, or set it in motion; or by cool verandas, magnificient houses, and spacious apartments, built to exclude the rays of the sun.

The utility of diaphoretics appears to be diminished in proportion to the previous habit of profuse perspiration established by the climate which is agreeable to the laws of the animal œconomy. Indeed, in the hot season, mere confinement to bed, with warm diluents and covering, will maintain profuse perspiration, and should be practised.

From much careful observation and experience, I venture to establish it as a cautionary rule, that the cure of the inflammatory and severe varieties of dysentery, in the East and West Indies, and other tropical countries I have visited, should never be *exclusively* confided to the excitement

of perspiration, during the hot season of the year, or even in the cold; for I have sometimes maintained it profusely several days, without obtaining a solution of the disease, or preventing its fatal career.

The maintenance of very profuse perspiration has sometimes been injurious, by rendering the patient more liable to vertigo and syncope, in the erect posture.

In the mild variety, diaphoretics with purgatives will often effect a cure, as they do in the European dysentery, which in general belongs to this variety. I have once cured the disease, (by a cathartic and exciting diaphoresis,) in twelve hours, where the patient was suddenly attacked, after having been in wet cloaths, about six hours.

I do not wish to be understood to condemn, or to object to, the practice of exciting the moderate or free action of the capillaries of the skin, in the hot season: I merely caution the practioner not to expect too much benefit from it; for I am of opinion, *a gentle moisture should be always maintained on the surface of the body*, that we may be assured, the disease is not protracted, nor increased, by the operation of the remote cause of checked perspiration; and that every advantage may be derived from the sympathy established between the skin and intestines.

These remarks advert to the hot season of the year. In the cold, from November to April, diaphoretics become more important and useful remedies. During this period, in China,* they experience cool, bracing weather, and in

* I speak only of the space between Canton and Macao, for Europeans are not suffered to have any intercourse with other parts of the Empire.

the month of January and February, the thermometer often falls below 40° of Fahrenheit, and, it is presumed, descends in the night time to the freezing point, as ice and frost are observed in those parts of the province of Canton, to which Europeans are allowed access. At Calcutta, the weather is very pleasant and cool to the feelings, after sunset, and during the night; the thermometer at this season ranges from 45 to 63°. In the higher provinces of Bengal, and on mountainous situations, the cold is still greater, and in some places frost and ice are common.

As you recede from the north, and approach to the southern extremity of the peninsula of Hindoostan, the effects of the cold north-east wind diminish, and the heat is proportionally less on both sides of the Peninsula. In similar tropical situations elsewhere, the change of temperature is the same.

From this short statement, it is evident, that perspiration will not be excited in this season, by the stimulus of the heat of climate alone, and that artificial means are necessary to its production, and maintenance. For this purpose, ipecacuanha or pulvis antimonialis, or the usual dose of antimonium tartarizatum, combined with nitre, calomel, or other remedies, should be prescribed every six hours; warm diluents should be employed; and their operation promoted by warm coverings, and a recumbent posture of the body. The warm bath, semicupium, or pediluvium, have great effect in exciting perspiration, (and the former with fotus, in relieving local pain,) and should be employed, as most convenient to the situation of the patient, or as best adapted to the state of his ease.

The maintenance of a free perspiration, in the cold season, generally relieves pain in some measure, diminishes the frequency of the pulse, and contributes, in the same degree, to the removal and abatement of the disease, as it does in inflammatory diseases of temperate climates, during the spring of the year; and the same quantum of benefit should be expected from it, as there is in other inflammatory diseases, and no more. The exhibition of from eight to fifteen grains of ipecacuanha at one dose, while the patient is confined to bed, and supplied with warm diluents, often occasions long-continued nausea, promotes perspiration, assists the operation of the cathartic, and reduces the frequency of the pulse. In the hot season, the advantages of a free perspiration are not so manifest.

The local excitement of great increased secretions of the capillaries of the skin, by blisters, over the seat of the constant pain of the abdomen, is sometimes highly useful, and should not be forgotten, after venesection has been employed; nor in slighter cases of pain, where venesection in not deemed necessary. In short, vesicatories should be applied in this disease, with the same views, and on the same principles, as they are prescribed in other inflammatory complaints. Stimulating liniments, such as lin: ammoniæ fortius, lin: cantharidis, and other rubefacients, applied to the abdomen, possess minor beneficial powers. In the cold season, a flannel bandage or swaithe, or an Indian shawl, may be rolled round the abdomen with great advantage, as they maintain local perspiration, and conduce to the relief of tormina; and with a prospect of less benefit, in the hot season.

Section V.

Of the Use of Mercurial Preparations.

The preparations of mercury have their peculiar effects in the cure of dysentery, and are admitted, by general acknowledgment and universal experience, to be highly useful and important remedies; but I do not coincide with (because experience will not support) the opinion of those who concede to them, the exclusive power of curing dysentery.—*See Mr. Milne, page* 138-9; *Mr. Fergusson and Dr. Gray, vol.* ii. *Medico-Chir. Transactions, and other authors.*

In my remark book, it is observed, that more than fifteen months had elapsed after my arrival in the East Indies, before one fatal case occurred, in the course of which, ptyalism had been fully induced and supported. This fact demonstrates the great utility of mercurial preparations; but it very naturally struck my observation, and became impressed on my mind, that the cases of fatal issue terminated so soon, in general, that time was not granted to excite ptyalism, and, in fatal cases of longer duration, it was strikingly remarkable, that the salivary glands obstinately resisted the action of mercury; a coppery or metallic taste, or mercurial fetor might be perceived; the gums might be white; or a tenderness and soreness of the salivary glands, throat, and mouth, were felt and complained of; but the most diligent and copious continued use of mercury in varied forms, would not induce a free, or, in some cases, even the slightest salivation: these facts evidently pointed out, that other remedies were necessary, and that mercury alone

should not be trusted to. Hence the necessity of previous bleeding and purging in the inflammatory variety; for when high inflammation is subdued by them, no obstacle will oppose the induction of mercurial irritation, and its beneficial consequences; besides, mercurial irritation often excites general increased action of the heart and arteries, and would, consequently, be injurious, if active inflammation have not in some degree, subsided, before its induction; and thus Robt. Woodcock died suddenly, from abscess, on the day his mouth became sore.

Mr. Fergusson remarks, "that in a few cases, and really "in a very few, the disease did not yield after the mouth be- "came sore, and these were then found to be of an obstinate "and incurable nature." Had the symptoms of these cases been described, I think they would have belonged to the inflammatory variety, as it is in it that the mercurial treatment and large doses of calomel fail.—*See Sec. on Cathartics.* From my experience and observation, I would infer that in dysentery, in visceral inflammation, and tropical fever, with local inflammation, *the excitement of mercurial irritation seems to be incompatible with a high degree of inflammatory action, with the existence of internal or visceral abscess, or mortification;* for under these circumstances, I have always failed to produce ptyalism by all its varied modifications in the largest doses. Although mercurial action cannot be induced, so as to supersede high inflammatory action, or the hectic febrile action from visceral abscess, nor be excited in the torpid action consequent to mortification; yet, I have found, it will generally subdue and supersede all minor or moderate degrees of visceral inflammation, probably, from its peculiar effect in changing the action of extreme vessels; from its exciting a particu-

lar and new determination of arterial blood to the salivary glands; from its increasing the secretions generally, and from its thus equalizing the circulation, by restoring its lost equilibrium, and withdrawing, as it were, the previous particular determination to the inflamed membrane or viscus.

Of the mercurial preparations, hydrargyri submurias, et unguentum hydrargyri fortius, are those generally employed. If, from peculiarity of constitution, hydrargyri submurias disagree, the pilula hydrargyri may be substituted for it. The unguentum hydrargyri fortius is used with a view of exciting ptyalism; it is also besmeared, with advantage, on the excoriated anus, to defend it from the stimulus of acrid excretions and evacuations.

Calomel is prescribed with more extensive and varied objects; as a cathartic, to empty the intestines of their fæces, and to excite an increased secretion from the healthy portions of their mucous membrane; to emulge the portal circle; as an internal sialagogue, to induce ptyalism; and, which is the most important, as a general stimulus to the system, to excite increased secretions generally, and a mercurial fever or irritation, that supersedes inflammatory and increased actions.

It should be always combined with the cathartics prescribed on the first periods of the disease, if there be no particular idiosyncrasy, which prohibits its use; this idiosyncrasy should be the result of trial or constitutional experience in the West or East Indies, during some of its diseases, where calomel has been exhibited from necessity; for it is surprising to find, how much the constitution of an European in the tropics varies in its susceptibility of im-

pressions or effects from this remedy, and how little agency it will often exhibit in large doses, on constitutions readily susceptible of its actions, in small doses in Europe.

I have already stated the dose of calomel to be from three to ten grains, twice a day, combined with other cathartics, when it is the object to purge; but this quantity may be much increased, when it is deemed necessary to excite salivation or purging very quickly. As, for instance, in a case attended with locked jaw, in which ung: hydr: fort: should be employed at the same time, as I used them in one case of this kind, with success, by salivating in twenty-four hours, aided by purging and exciting perspiration.*

When it becomes requisite to excite salivation, (and such necessity will exist, or at least such a practice is recommended, when the disease is not soon cured or greatly relieved, by the previous bleeding, purgatives, or diaphoretics,) I have been in the habit of combining hydrargyri submurias and pulvis ipecacuanhæ, and of giving it in appropriate doses, at stated intervals, until ptyalism was induced, as three grains of each every six hours made into a pill with a drop of oleum menthæ pip.

The frequent repetition of the pill should depend upon the urgency of the case, the violence of the disease, and the expected benefit to be derived from the early induction of ptyalism. I have prescribed it every two or three hours in cases of the inflammatory, and in bad cases of the severe, variety; and in less severe cases, in the mild va-

* In this case of Cook, a marine, both trismus and dysentery were produced by cold. This was the only instance that occurred to me, of the necessity of exciting ptyalism so hastily.

riety, and in cases where the disease has considerably abated, have given it only twice or thrice in twenty-four hours. In all moderate cases I have prescribed it once every six hours. It should be as often employed during the administration of purgatives, and should be prescribed at once where purgatives are not necessary.

The hydrargyri submurias and ipecacuanha, administered in this form, will generally keep the bowels open (after they have been once purged;) will maintain a gentle perspiration, and sooner or later induce ptyalism; but they sometimes purge the patient too much, and in this event, from half to one grain of opium, commonly one grain, should be combined with them, and alternately employed or disused, as the copious or profuse discharge, or unnatural and injurious retention, of fæces, shall indicate.

The exhibition of hydrargyri submurias may be modified so as to combine it with other remedies, besides ipecacuanha, that may be deemed useful or judged more appropriate; thus, in some cases of the inflammatory variety, I have prescribed large doses of nitre, in combination with antimonium tartarizatum, hydrargyri submurias, and tinctura digitalis. Calomel may be also exhibited with antimonials, or any other diaphoretics or aromatics, or with pulvis ipecacuanhæ comp: instead of opium, where the latter is required.

In the treatment of dysentery, a preference is probably given to pulvis ipecacuanhæ, over the antimonial preparations, from habit; as the former had been long employed from a notion, that it possessed an anti-dysenteric quality.

For the simple purpose of exciting salivation, unguentum hydrargyri fortius is preferred by some, in all cases, to the other preparations of mercury, and, in dysentery, may be preferred in the cases, where calomel disagrees; these, however, are not numerous, and the ointment does not produce the varied effects of calomel, but acts simply as a sialogogue.

When it is determined to use this ointment, it should be rubbed on the thighs, arms, or abdomen, twice a day, in the quantity of one or two drachms, or more, if necessary, from any particular circumstance. One drachm is in general sufficient. Dr. Chisholm, in his *Treatise on the Pestilential Fever of the West Indies*, has attributed powerful ptyalitic effects to this ointment injected with an enema, and hence, it may thus be sometimes usefully employed, although I have very seldom had recourse to it.

As it commonly happens, that every patient is considerably reduced by this disease, and the effects of mercury, and the other remedies, especially if he be a seaman previously debilitated by a sea diet on a cruize, it becomes an object worthy of attention, to avoid the excitement of an *unnecessarily profuse* degree of ptyalism: as it should be recollected, that profuse salivation is not necessary to the cure; that the patient cannot receive much nourishing food, when the mouth and throat are much affected by mercury; and although this circumstance be attended with advantages in some cases, yet the patient, already weak, may eventually sink from want of nourishment and proper support.*

* Scruple doses of calomel are recommended, "two, three, or four times a day," in Mr. Johnson's valuable work on the Influence of Tro-

In dysentery, very important consequences from the mercurial irritation are experienced by the diseased intestine; for as soon as ptyalism is induced, and sometimes as soon as the mouth discovers minor effects of irritation, beneficial changes in the diseased actions are accomplished.

If the constipation have continued obstinate, and resisted the operation of cathartics, as soon as the mercurial irritation is discernible in the mouth, the constipation is overcome, and natural fæces become evacuated. This effect of mercury is more particularly remarkable, when mercurial irritation is induced on the second or third day of the complaint. The regularity of the bowels is often fully and permanently established, in very many cases, by the continuance of the salivation, if the patient commit no error in

pical Climates, page 213; but such large doses appear to me to be rarely necessary, and, in general, not proper: for if they be intended as a purgative, I would observe there are others less uncertain, more safe, and that do not increase the hepatic secretions so very copiously, *see page* 97; and if to excite salivation in a very short period, I would urge, that such an object does not, in general, seem necessary, and the attempt, in some cases, is improper; for in the inflammatory cases, fraught with danger, the induction of salivation is incompatible with a high degree of inflammation, *page* 112, and when that is subdued, the absence of immediate danger enables us to proceed leisurely to effect it, if the subsequent symptoms require it, *page* 114-5. The only case in which I thought such large doses necessary is mentioned at *page* 114. Besides, these doses may salivate profusely as well as speedily, to which objections are offered in the paragraph above, and which particularly apply to the cases of British sailors at sea, among whom the practice originated, and among whom I have witnessed fatal terminations for want of a proper diet; and salivation is not in all cases necessary.

If they be intended to excite a mercurial fever or irritation in the system speedily, such a result has appeared to hasten the catastrophe, if affected before high inflammation is subdued.—*See p.* 112; also, 121-2-3, *et seq. this sect*

diet, and a perfect recovery ensues; but it sometimes happens, that diarrhœa is induced by an error in diet, after the salivation has ceased.

However copious and constant the morbid secretions of the intestines may have continued, notwithstanding the effects of all the remedies, and the preservation of a lax state of the bowels; yet, as soon as ptyalism is induced, and sometimes as soon as a minor mercurial irritation is discernible in the mouth, either an immediate cessation of morbid secretions takes place in the mild and less severe cases, or a great diminution of them follows, even in the very severe and inflammatory cases. This cessation or diminution of morbid secretions generally continues as long as the ptyalism is maintained, and in the mild and less severe cases, is often followed by a perfect recovery. In the very severe and inflammatory cases, where the morbid secretion has been copious, the cessation or the diminution of it often continues a week, fortnight, or even three weeks, and appears to depend upon the prolonged salivation. At the end of this period, the patient, in all probability, recovers the power of mastication; he feels a sensation of hunger; he eats more solid food than he has been accustomed to during the ptyalism and acute stage of the complaint; and, perchance, more than his stomach can digest; hence, the undigested food occasions flatulence of the stomach and bowels, and, in its passage through the intestines, acts as a stimulus to diseased vessels, which brings back an increase of morbid secretions, and occasions a diarrhœa, or a chronic dysentery.

When a dimunition only, and not a total cessation, of morbid secretions, follows the induction of ptyalism, it

happens, in many cases, that they diminish daily, during the continuance of salivation, until they cease altogether, and a recovery ensues; while, in other cases, the morbid secretion does not wholly cease during its continuance, and the disease becomes chronic; or if it does, it is brought back again by some cause, as an error in the quantity or quality of the diet; or on the simple cessation of ptyalism, the morbid action of the vessels of the diseased intestines is renewed, strikingly displaying a reverse sympathy in action, between them and the salivary glands. These cases of continued morbid secretions, becoming chronic, sometimes terminate fatally, which is a proof, that salivation is not always productive of a recovery, nor mercury a certain cure for dysentery.

The good effects of ptyalism are not confined to the removal of constipation, and the morbid action of intestinal vessels; but are sometimes extended to the immediate induction of a perfect regularity of the bowels; this, although a frequent occurrence in the mild, and in moderate cases of the severe variety, is not very common to the other, for it often happens, in inflammatory and very severe cases, that the evacuations continue much more frequent than in health, and the egesta are loose, constituting, in fact, a state of intestinal diarrhœa, frequently of indefinite continuance, while sometimes its duration is short. Indeed, it could hardly be expected, that the morbid change of structure of the intestine should be so instantaneously removed, as to accommodate itself to the passage of fæces in a hard compacted state, and of their natural volume; although it does so after the minor diseased state induced in the mild and less severe cases.

On the induction of ptyalism, the fever, tormina, and tenesmus, and every unpleasant symptom, are commonly removed, with the morbid action of vessels, or at least, these symptoms suffer a considerable abatement.

In the state of diarrhœa consequent to dysentery, the stools are always loose, but very seldom copious; although more frequent than natural, are generally scanty, and the more frequent the more scanty; hence, if it were possible to ascertain, with strict precision and correctness, the quantity of egesta that ought to be proportioned to the ingesta, we might leave the diarrhœa to itself, where the balance was equal, without prescribing astringents, absorbents, or other medicines. But as this cannot be trusted to for want of data, and because the stools are sometimes mixed with morbid secretions, it is, in general, necessary to prescribe opium combined with aromatics, or any other proper medicines. In the exhibition of this remedy, we are to be guided by the frequency and quantity of the evacuations: if they be very frequent and copious, the quantity of one grain of opium, or ten or twelve drops of tinctura opii may be given in mistura cretæ with aromatics, or in the form of pulvis ipecacuanhæ comp:, confectio opii, or in any other appropriate form, every six hours. I do not consider six or eight stools in the twenty-four hours too many; and in this case, if they were not copious or exhausting, should only prescribe the dose twice a day, and probably administer, at the same time, some dec: cinchonæ with nitric or sulphuric acid. As the number and copiousness of the evacuations decreased, I should, in a corresponding manner, diminish the quantity of opium, or suspend its use altogether, and *vice versa;* or, as I have elsewhere remarked, alternately increase or diminish, employ or disuse it, according to the circumstances of the diarrhœa.

If too much opium be given, it often induces a retention of excrement, with tormina and tenesmus; to remove which, we should resort to olcum ricini, or pulvis rhei in a moderate dose, and follow up their use by opium in smaller doses, or by a temporary suspension, or permanent disuse of it.

A failure to excite the ptyalitic action of mercury has been generally regarded as pregnant with danger: some constitutions, however, are not susceptible of the ptyalitic action of mercury, and the slight symptoms of mercurial irritation, unaccompanied by salivation,* are not dangerous in patients possessed of such, if, at the same time, they experience relief from the diseased symptoms, and they gradually recover, instead of becoming weaker and more emaciated, &c. by its continuance. Patients of this idiosyncracy do not experience such striking relief, and such prompt benefit, from the action of mercury, (although the advantages are considerable and well marked,) as those with whom the ptyalitic action is fully induced, and the salivation free. There is also another exception: it sometimes happens, the patient is previously so much reduced by the disorder, that salivation does not immediately ensue, on the mouth discovering marks of mercurial irritation; yet all the symptoms become relieved, the patient acquires strength from sleep, and from a suspension of his sufferings; and, as the strength increases, the salivary glands obey the irritation of the mercury, and salivation is induced.

One important effect of salivation is such a state of soreness, excoriation, or ulceration of the gums, tongue, and

* See page 111.

cuticular lining of the mouth, as prevents the patient from masticating any animal or other food, that is so hard and solid as to require mastication, and his diet must, from necessity, consist of mild food of thin consistence and of easy digestion, such as congee, arrow-root, sago, panada, gruels, and broths or soups; it is observed, that, during this period, the bowels become easy, and are seldom disordered; the quantity of pus, mucus, serum, or blood, is diminished gradually, or their secretion or discharge subsides, is suspended, or ceases altogether. The intestines also, during this period, are, in fact, kept in a state of comparative quiescence; the faeces are less stimulating and yellow, as in health; the function of transmitting them is but gently exercised; and this state must necessarily favor their recovery from the injuries they have sustained. From this beneficial effect of low and mild diet, arising from the natural necessity of circumstances, may be deduced the wise maxim of keeping the patient on the same diet after ptyalism has ceased, until the bowels become nearly or wholly regular, and the blood, pus, and mucus, have disappeared from the evacuations, or are very greatly diminished.

After having expatiated on the advantages of salivation, it may be enquired, if it be always a necessary condition in the cure of dysentery. This has been in part answered by an observation, that the various varieties of dysentery sometimes yield to cathartics alone, or in conjunction with bleeding and diaphoretics. In such favorable cases, it is not necessary to excite salivation. But should not the remedies just alluded to succeed, the hydrargyri submurias, or any other mercurial preparation already in the course of employment, should be persisted in, with the ultimate view

of exciting salivation: yet it is not a necessary condition then; for should the diseased symptoms yield, and the morbid secretions cease during its administration, before it has excited salivation, the use of mercurials should be desisted from; but if the disease should not yield to the previous remedies, nor to mercurials, during their exhibition, before ptyalism is produced, then salivation becomes a necessary condition, and mercurials should be persisted in, until it be moderately excited, and maintained.

The administration of calomel, as a purgative and as a sialogogue, has frequently the effect of inducing a too copious increased secretion of bile in the tropics, as well as in England;* but after copious ptyalism has existed a short time, the secretion of bile sometimes appears to cease, for the stools become black or white, without any admixture of bile, indicating a reverse sympathy between the liver and salivary glands, as the cessation of the morbid secretions of the intestinal vessels does between the intestines and those glands. It is perhaps doubted, if the excitement of increased secretion of bile in dysentery be *always* useful, as it is sometimes too copious, and occasions great pain during its passage through the diseased portion of intestine; yet, as in some cases, the liver shews symptoms of inflammation, and in others it is diseased without displaying any morbid symptoms, or exciting our attention, until the appearances are disclosed by dissection, the benefit, which will result from unloading the liver and the biliary ducts of their contents, will certainly counterbalance the irritating

* "Calomel, given in the dose from ten to twenty grains, so as to "induce purging without the assistance of other drugs, appears to me, "to particularly increase the secretion of bile and to evacuate it." *Darwin's Zoonomia, Art.* 2, 5, 1, *Secernentia.*

effects of their passage through the intestines, and even of their stimulating effects, if moved into the stomach. I shall now briefly notice some of the unpleasant effects and consequences of salivation, that occasionally occur in this, in common with other diseases.

The fauces, tongue, and gums, sometimes become very uneasy and sore, and the salivary secretions fetid, in which case aluminous and antiseptic gargles should be used freely.

I have seen two cases where the ptyalism has recurred once, and one case where it recurred at three different periods on taking cold, after it had fairly subsided: in these cases, I have directed the patient to pay attention to the earliest symptoms of its recurrence, and constantly employ an alum gargle for their prevention and cure.

I have seen one patient in Madras hospital, where the ulceration on the gums and membrane of the mouth had been so general and extensive, that an adhesion of the contacting surfaces of the gums and cheek ensued; the muscles of the mouth were in some measure rendered useless; the mouth could be scarcely opened; and mastication was performed with so much difficulty even in a slight degree, that he was compelled to subsist on sops and minced meats. I conceive, that this adhesion might have been prevented, if a probe or one's little finger had been passed several times a day, between the gums and cheek, during the period of cicatrization. The salivation is sometimes too copious and very debilitating, and requires the use of astringent gargles to restrain it.

It sometimes happens, after ptyalism has ceased, that the

maxillary glands suppurate, in consequence of inflammation from taking cold; in this state, mastication is impeded, and, with deglutition, is difficult and painful; and the patient becomes weak and emaciated from inability to take sufficient food to nourish and recruit him. For these reasons, the abscesses should, in all cases, be opened as soon as possible after suppuration has taken place, and a small outlet (of the size we suppose nature would have made it) given to the pus, that the function of mastication may be restored to the muscles and jaws. An objection was offered to this practice by an hospital surgeon in very extensive practice in India, from a persuasion, that the abscess would not heal favorably, if it did not open spontaneously; but, in the case of my assistant, who was his patient, and the subject of consultation, the opening of the abscesses was so long deferred, with the view of allowing Nature to perform it, that he became exceedingly reduced and emaciated, and eventually died. It was an useful lesson to me, for I have always found the abscesses to heal readily, that are opened early, and the patients to recover.*

In those cases, where suppuration or mortification have not been induced, and in which salivation has not conduced to a recovery at sea, I have generally attributed the unsuccessful issue to the want of a sufficiently mild and nutritive diet, and have persuaded myself, that the fatal event might

* In all cases when abscesses are opened, we should imitate Nature as nearly as possible in the operation, by making a small opening just where Nature indicates she would do it, and by suffering the pus to escape gradually by the natural contraction of the parietes of the abscess, without any artificial or manual pressure. I am also of opinion, that all indolent abscesses, as the scrofulous, should be always opened, before the integuments that form their external wall, are so much absorbed, and become so thin as to endanger their sloughing, or ulcerating away, after being opened.

have been warded off by the choice of diet the shore affords. It must, nevertheless, be confessed, that cases have terminated fatally in the chronic stage, subsequent to a well conducted salivation, the cause of which could not be attributed to defective diet.

Section VI.—*Of the Regimen.*

In the mild variety of dysentery, there is no necessity for a very strict regimen; the patient should, however, abstain from animal food, malt liquors, spirits, and wine.

In the inflammatory and severe varieties, the regimen should be strictly antiphlogistic. The diet should consist of congee, gruel, sago, panada, arrow root, farinaceous preparations, and broths, divested of their fat. Indeed, Nature has so wisely ordained it, that the appetite for animal or any other improper food or drink is in this disease lost. The drinks should be bland and mucilaginous, such as barley water, thin congee, thin sago-soup, &c. These dietetics should be continued during the acute stage, and even in a great degree during the salivation, although, on its induction, if the bowels become regular, and the morbid secretions cease, the patient may, after a short time, be indulged with jellies, more nutritive soups, even some wine, and gradually advance to the use of light solid food.

Experience has abundantly proved, that the use of the solid food of animals, before the morbid secretions have ceased, and ptyalism has subsided, even when the appetite has demanded it, has induced a chronic state of dysentery, which has severely punished the patient for want of absti-

nence. When the patient returns to the use of solid food, the lightest and most easy of digestion should be selected, and continued even after the disease has been perfectly cured. Let fruit, in general, be abstained from, except custard-apple, or any that has always proved easy of digestion to the patient. Let temperance in drinking, and moderation in eating, be rules of conduct. A discretional proportion of wine must sometimes be allowed to those patients, during the whole course of the disease, who had previously been addicted to intemperate habits; but an attempt to dispense with it altogether should first be made.

Strong tea has often proved an emetic to the stomach, debilitated by this and other diseases. I have frequently seen coffee and cocoa disagree violently, and their use should be adopted with much caution, and regarded with great suspicion.—Weak tea is preferable. Milk may be mixed with the arrow-root, sago, and all the farinaceous preparations, provided it does not disagree with the stomach, as I have sometimes found it to do.

A horizontal position of the body in dysentery has been found to alleviate tormina and tenesmus, and to diminish the frequency of evacuations; while the vertical disposes to their induction, and to more frequent evacuations. In many cases I have seen all three induced from the patient arising from his bed, and sitting up a short time, although he had not felt either tormina or tenesmus, or an inclination to go to stool previously, when in bed. Perhaps the mechanical pressure of the abdominal contents on the sigmoid flexure of the colon, the rectum, and other contents of the pelvis, which takes place in the vertical or erect posture of the body, has the principal share in producing these effects.

A horizontal posture conduces to the excitement of perspiration, to the tranquillity of the mind, to the perfect rest of the muscles, calms the circulation, and enables the strength of the patient to be husbanded.—Oportet imprimis conquieseere.—*Celsi Lib.* iv. *cap.* xv.

The horizontal position, with sweating, sometims disposes to syncope, when the vertical is assumed, and it often occasions pains of the loins, which I have once known to be mistaken for the pain of nephritis. These effects seldom happen but on the first days of the confinement to bed, and the patient's fears, which are excited at those events, should be quieted by an appropriate explanation of the cause.

In the hot season, if the bed be too warm, it relaxes, weakens, and occasions restlessness; hence it should be cool, and placed in an airy situation, but the patient should not be exposed to a current of air, as, during the administration of mercurials and diaphoretics, such an imprudent exposure often superinduces cold and rheumatism, troublesome relapses, and glandular swellings.

In the cold season, the bed and situation should be adapted to the state of the patient's sensations of heat and cold, to the state of the thermometer, and to the degree of perspiration we are anxious to maintain.

In the inflammatory and severe varieties, the recumbent posture of the body should be constantly observed; in the mild, it is not always necessary.

CHAPTER IX.

Section I.

Of the palliative Remedies for particular Symptoms.

Tormina and tenesmus are, in all cases of the inflammatory and severe varieties of dysentery, very painful and distressing symptoms, and sometimes produce dangerous effects: they increase debility; cause faintness; occasion watchfulness, anxiety, and restlessness; and bring on a train of severe nervous symptoms and sympathetic pains, which greatly exhaust the sensorial power. In the mild variety, those symptoms are seldom so very distressing, and, fortunately, there is a remedy, by which they can, in all cases, be mitigated, and in general removed.—This is an anodyne enema, which is best prepared by dissolving five grains of opium in four ounces of barley water or rice gruel.

The enema should be thrown up from a small four ounce syringe, with a long small pipe to it, as a small pipe is more easily insinuated, and occasions but little irritation to the morbid and irritable rectum. The enema should not exceed the quantity of four ounces, as it will not then, by its bulk, excite irritation and consequent efforts to expel it, which a larger quantity is so liable to do.

Let the enema be forcibly retained by mechanical pres-

sure on the anus with a towel, until the disposition to evacuate it be done away, if any such arise. About half an hour, and sometimes in a shorter period after this enema is injected, the tenesmus subsides, the patient begins to feel easier, and relieved from tormina; the pulse becomes fuller, and the face a little flushed; a pleasing languor succeeds, and the patient gradually glides into a tranquil, profound, and placid sleep, which often continues from four to ten hours. If the tormina and tenesmus recur with severity, the same remedy should be resorted to. I have not had occasion to repeat the enema oftener than twice a day. The quantity of opium contained in the enema may be diminished, if the symptoms recur with less severity, but I have not experienced the necessity of increasing it, nor do I think that an increase would be beneficial, as five grains have never failed to produce the described advantages, if they were at all attainable.

The anodyne enema may be used in all stages of the complaint, where the tormina and tenesmus are very severe; for I have not found that it prevents the operation of cathartics, but, on the contrary, has sometimes rather seemed to facilitate it. Yet, when anodyne enemas are administered in the inflammatory variety of dysentery, before the purgatives have operated, we should be more than ever active in the employment of the remedies for subduing inflammation, on account of their increasing the fullness and strength of the pulse, although they often diminish its frequency.

In the stages of unfavourable cases, after an abscess or mortification has formed, they are useless, and lose all their good effects, and their failure becomes a diagnostic of these fatal terminations.

It may be observed, that the enema, formed by a solution of the opium in cold barley water or decoctum oryzæ, agreeable to the prescribed quantities, is equally efficacious, and was generally preferred by Mr. Griffiths, my assistant surgeon, from a persuasion, that it was retained more readily, and sooner produced a torpor or quiescence of the muscles engaged in the action of tenesmus.

Less permanent and effectual remedies for the relief of tormina and tenesmus, will be found in fomentations to the abdomen, pubis, and nates; and in warm enemas of starch and lard of pigs or sheep, or of any other mucilaginous and sheathing composition, which may be regarded as internal fomentations. The tenesmus may be mitigated at the period of intestinal evacuations, by sitting over the steam of hot water, or, more effectually, by sitting or immerging the buttocks in it,* as in a warm hip bath, during the period. In some cases, the passage of the fæces, bile, and morbid secretions, through the diseased portion of gut, occasions exquisite pain and tormina, which can only be alleviated by constant fomentations to the abdomen, or by a vessel or bladder, containing hot water being laid over the abdomen. Mucilaginous and diluent drinks should be used; for, by becoming blended with the morbid secretions and contents of the intestines, they will render them less irritating.

Besides its share in the action of tenesmus, the sphincter ani is subject to independent painful contractions; the verge of the anus sometimes experiences a sensation similar to scalding, after the passage of the excretions; the anus sometimes becomes excoriated, and keeps up a painful sensation

* Desidere oportet in aqua calida.—*Celsus ch.* xviii. *De Tenesmo.*

and soreness, of which the patient seriously complains. In these cases, the patient should ease himself in a pan of warm water, that serves as a bath to the parts; should wash off all acrid excretions and other discharges, wipe the parts dry with silk, or a fine soft cloth, and anoint them afterwards with unguentum hydrargyri fortius, or an anodyne ointment. Fomentations are also useful, as substitutes for the bath, when it is not at hand.

These symptoms are most severe in the inflammatory, and in bad cases of the severe, variety. The severity and frequent recurrence of tenesmus will be diminished by repressing, instead of indulging, the inclination to use the bed-pan except from absolute necessity.—Non quoties libet desidere, sed quoties necesse est.—*Celsi lib.* iv. *cap.* xvi. *De lævitate intestinorum.*

Constant sickness and very frequent vomiting are most distressing symptoms. When they are occasioned by the presence of bile, and occur before the operation of cathartics, their free action will considerably or wholly relieve them. When they are induced by the *peculiar* irritability of the stomach, *(page 7,)* or by the presence of a small quantity of bile, a drink composed of two drachms of supertartrate of potass, dissolved in a quart of congee or rice gruel, has often proved successful in removing it, or has always relieved it in some degree, provided no more than *one mouthful* be taken at a time.

The efficacy of this prescription depends as much upon observing the method of taking it, as upon the power of the medicine: for if the patient take a copious draught of it, or any other fluid, the stomach will most certainly reject it;

and to this the patient is sometimes prompted, by an intense thirst, which generally accompanies the irritability of the stomach, and which makes him disdain every restraint, but which is, notwithstanding, best relieved by the cream of tartar potion, taken by a mouthful only at a time, and repeated as often as the stomach will bear it. No other drink or diet should be employed with it; the patient is to subsist altogether upon it, until the vomiting have ceased, and then he may be permitted to return to the use of small quantities of bland food, which should be cautiously increased.

Further observation and experience have induced me to believe, that the success of this practice in allaying the peculiar irritability of the stomach, and removing its inverted action, depends almost wholly upon proportioning the quantity, and adapting the quality, of the imbibed fluid to the existing state of irritability; for so dreadful a state of it can scarcely be conceived, and will very rarely be met with, by which it is rendered incapable of retaining a very small portion of fluid, except in cases of abscess, or mortification of some of the abdominal viscera. Hence, in the conduct of the cure, no more of the potion, or of any other fluid or substance should be at any time exhibited, than the stomach can retain, if it be but half a mouthful or a tea-spoonful, and the patient should be enjoined never to drink so large a quantity, as he has at any time previously rejected, *nor exceed that (however small) which has been retained*, until the sensations of sickness and uneasiness become much relieved, and the vomiting has for some hours ceased; until time has allowed the stomach an opportunity to recover its function; and the frequent repetitions of an unirritating quantity of the potion, or drink, will sanction a cautious experiment to increase it.

In returning to the more solid articles of diet, or to more copious quantities, let it be remembered, that the quantity can only be increased in the ratio that the irritability is diminished, and the quality of the food or drink should only be changed, in the ratio, that the susceptibilities of the stomach's retention are altered and increased. By observing these rules, the irritability and inverted action are often removed in 24 or 48 hours, but nevertheless require great subsequent caution to prevent their recurrence. I have treated cases, where a copious draught of fluid, especially of tea, would induce vomiting, many days after the irritability has apparently ceased, and in some cases the patient's stomach would not for many days or weeks retain any thing but small quantities of arrow-root, or such mild food. I have experienced this remedy combined with the method of using it, much more efficacious, and infinitely less uncertain, than emplastra lyttæ, æther, enema assafœtidæ, and haustus salinus, which are recommended by various authors. Fomentations with stupes of spiritus camphoræ et tinctura opii applied to the region occupied by the stomach, afford temporary relief, and are very grateful to the patient. The other remedies are occasionally useful, but uncertainly so. If visceral inflammation be present during the prevalence of sickness and vomiting, active means to subdue it should be used.

The cream of tartar portion has but little effect in relieving the sickness or checking the vomiting, which occur in the fatal stages of dysentery, when the patient is excessively reduced, and the irritable state of the stomach appears to be the effect of exhaustion, and a prelude to the speedy dissolution of the patient. It is but little serviceable in those cases also, where the irritability and inverted

action are consequences of an abscess formed or mortification induced in some of the abdominal viscera. In such a state, this, as well as every other remedy fails to be permanently useful: a large dose of tinctura opii or five grains of pure opium are then the only remedies, which can soothe and alleviate the most distressing and pitiable sufferings, and smoothe the passage to the grave. I have previously observed, if the irritability and vomiting should, in the first instance, appear to depend upon the presence of crude undigested food in the stomach, an emetic may be premised.

When the strangury, ardor urinæ, &c. are caused by paucity of urine or its acrimony, the patient should be encouraged to drink plentifully of mild mucilaginous and demulcent diluents; should be ordered some diuretic, by which the urinary secretion may be promoted and increased; and fomentations should be employed from the abdomen to the nates.

When these symptoms, with spasms of the spermatic chord, are caused by sympathy, the removal of the primary affection most commonly cures the secondary. Thus, when tormina and tenesmus are allayed by an anodyne enema, the spasms of the spermatic chord cease, and the painful strangury is diminished, and anodynes prove as serviceable as fomentations. It sometimes happens, that the strangury continues, after the tenesmus has abated or ceased, and requires a persevering use of the remedies already enumerated.

Should the spasms of the lower extremities occur, which have been described in *chap.* ii. *section* v, together with

pains lancinating in the direction of the anterior crural nerve, the semicupium will be found useful, as well as a flannel bandage applied from the toes to the groin. As the spasms are generally excited by sympathy with the lower intestines, they are often cured by the same remedies as remove tenesmus, especially the anodyne enema. Should cystitis actually take place, bleeding will be necessary, as well as the other remedies of cystitis, which can, with propriety, be used in the combined form of disease it presents, when connected with dysentery. Ischuria is generally removed by fomentations, or the semicupium.

Diuretics may be sometimes employed as general remedies, as well as palliative ones; as the increased action of the kidneys is supposed to diminish the increased action of the intestinal vessels. Et ea, quæ urinam movent, si ea consecuta sunt, in aliam partem humorem avertendo prosunt.—*Celsus Lib:* iv. *cap.* xv. *de dysenteria.*

When symptoms of acute hepatitis occur during the acute stage of dysentery, they become an additional reason for having recourse to venesection, calomel, as a cholagogue, purgatives, and blisters to the right hypochondre, which have, in general, soon removed them; but if they do not effectually accomplish it, it is a fortunate circumstance, that the antiphlogistic regimen and the use of mercurials are adapted to their cure, and form the most essential part of the treatment of both diseases.

When redundance of bile exists, it should, if possible, be determined through the intestinal canal by purgatives, and the bile should be diluted by demulcent and mucilaginous drinks. When it is moved into the stomach, it is

generally rejected by vomiting, but if it occasion great anxiety, and be not readily determined downwards, the vomiting may be encouraged by drinking warm water.

The exquisite pains felt during the passage of bile, through the diseased portion of intestine, should be mitigated by fomentations and mucilaginous diluents.

When vertigo takes place, on the patient assuming the erect posture, he should be confined to bed, and use the bed-pan in it, instead of arising to sit on the night chair.

Hickup may be sometimes considerably relieved by fomentation around the attachments of the diaphragm, and by frequently sipping weak spirits and water, if the presence of inflammation do not interdict its use.

When the mortified rectum or inner coats of it are evacuated through the anus, I have, twice every day, cut away with a pair of scissars, the loose portions of the mortified gut, that had been evacuated, or that I could draw out by very gentle and easy extraction, and to the portion which was purposely left protruded, was applied lint dipped in a solution of a drachm of camphor in an ounce of spirit of turpentine, and confined by a compress and T bandage. This spirit applied warm, had the effect of correcting the putrid smell, and rendered the black gut of a dark lead color.

Should symptoms of gastritis or of peritonæal inflammation be combined with dysentery, they afford ample reason for venesection: it is fortunate that cases accompanied

with gastritis are rare, for the vomiting which attends it, could only be removed by subduing the inflammation.

A copious and sudden hæmorrhage from the intestines is generally suppressed by the state of syncope it induces; but if the sudden effects on the arterial system do not produce this state, it should be treated on the same principles, and by the same remedies, as other hæmorrhages with the exception of venesection, which is unnecessary, and perhaps would be fatal. Perfect rest, exposure to the cold air, nitre, sulphuric acid, cold drinks, and even cold applications to the abdomen, or cold enemas may be employed. All heating and stimulating food, drink, and medicine, should be avoided. These attentions may prolong life; but I have never seen any means ultimately restore health, or effect a recovery.

In cases of the severe and inflammatory varieties, and in a few cases of the mild variety, the digestive powers are particularly weakened; hence it becomes necessary to prescribe the use of bitters, or decoctum cinchonæ, with aromatics, to recommend a light diet, and to enjoin the strictest observance of temperance for some weeks after the cure has been accomplished.

Should the employment of any or of all the remedies recommended in the treatment, bring any of the varieties of dysentery to a happy termination in a short time, and re-establish perfect regularity of bowels and healthy intestinal secretions, the disease may be said to be cured in its acute stage.

Cases of the mild variety, and some fortunate ones of

the other varieties, are often eured so soon, that the eonstitution scareely feels any other effect from the disease, than a temporary interruption to health.

It generally happens in the aeute stage, that the lymphaties and absorbents aet with great energy and aetivity, and absorb the fat from the cellular texture of the body, while the laeteals aet with diminished energy, and thus thinness is produced; in favorable cases, where the stomach and laeteals soon regain their funetions, the patient recovers his embonpoint almost as fast as he lost it, while in others, this process is more slow and gradual.

The mild variety is seldom prolonged to a ehronie stage. The very severe and inflammatory varieties frequently terminate in chronie dysentery, which shall be now considered.

CHAPTER X.

OF CHRONIC DYSENTERY.

SECTION I.—*General Observations.*

IT is difficult to give such a definition of chronic dysentery, as will comprehend the principal features of its several varieties, and mark its period of commencement. Its nosology, however, I have attempted to sketch, in chapter 1st, section 1st, and I hope its imperfections will be pardoned, if it be sufficiently perspicuous to make the different varieties understood.

It is confessedly allowed, that "it is not easy to ascertain the limits between two diseases, when the chronic is the consequence of the acute;"* so it is not easy to define in many cases where the acute stage of dysentery terminates, and the chronic one commences; the division must in many instances be arbitrary. The chronic stage of some diseases is maintained, by the simple continuance of a diseased action previously established; that of dysentery, although always a sequela to the acute one, is not only thus continued, but is sometimes maintained by the consequences of previous diseased action, by incidental occurrences and indiscretions during its continuance, and by cold, checking the perspiration.

* Cullen's Preface to his Nosology.

Proceeding arbitrarily, I shall endeavour to fix the limits between the two stages, when the acute is not soon succeeded by the restoration of health. Let us then consider the acute stage to have terminated, and chronic dysentery to have commenced, when the period of immediate danger is past, and ptyalism has been induced;*—if, during its continuance, or before its termination, a perfect regularity of bowels and cessation of morbid secretions, or an uninterrupted and gradual diminution of diarrhœa and those secretions, until their cessation and a perfect regularity of bowels be permanently established, do not take place. But should the regularity of bowels and cessation of morbid secretions (however induced) be only temporary, and be succeeded by a return of both; or should the gradual diminution of them be only temporary, and succeeded by their increased return, then these periods of relapse must be also considered, as the commencement of the chronic stage.

Now as ptysalism will be induced at periods of time, which are indefinite and uncertain, and as the period must depend upon the susceptibilities of the patient, and the quantity of mercury exhibited; and as the duration of the benefits resulting from it, may be frustrated by indiscretions and contingencies, it must be clear, that no fixed and definite *time* can be appointed for the commencement and development of chronic dysentery; but that the continuance or return of morbid secretions, with diarrhœa, after ptyalism has subsided, must be considered our principal guides in denoting the limits between the two species of disease:

* It should be remembered, that much reliance is, with justice, placed on the effects of ptyalism, in putting an end to those acute stages of dysentery, which have resisted the previous use of venesection, cathartics, and diaphoretics.

and thus, frequent loose fæcal stools, mixed with morbid secretions of the intestines, and accompanied with tormina and tenesmus, have been assumed as the characteristic symptoms of most of the varieties of chronic dysentery.—*Chap.* 1, *sect.* 1.

Section II.

Of the Diarrhœa that Succeeds to Acute Dysentery.

Torminibus, seu *evacuante* methodo, seu *antiphlogistica* consopitis, alvus subinde fluebat indesinenter diebus multis, quin etiam septimanis. —Stoll—*De Natura et indole Dysenteriæ, cap.* v.

It sometimes happens, that the acute stage of dysentery is followed by frequent evacuations of loose fæces, for several days or weeks: but they are not so copious, nor are they often mixed with increased mucous secretions of the intestines, in such quantities as to render the stools so watery, as in idiopathic diarrhœa. These stools are at first accompanied with tormina, which daily diminishes, provided the intestines, recently subject to great morbid action, are not stimulated by improper diet, or other causes, for then tormina and tenesmus recur. The stools are not usually mixed with any morbid secretions, but a return of these is very easily brought back by any intemperance of diet or drink, or by a retention of fæces; and they sometimes recur apparently from no other cause, than a cessation of ptyalism, or a fresh cold.

The retention of fæces just spoken of takes place, although the patient have frequent loose stools, and may be

ascertained by increased tormina; a sense of fulness in some part of the intestines; the scantiness of the stools; and perhaps by a general irritation, slight fever, flatulence, and loss of appetite. This lodgment of fæces also occurs in every variety of chronic dysentery, and probably takes place above the diseased portion of intestine.

The stools in this diarrhœa are always loose, but very seldom copious; although more frequent than natural, are generally scanty, and the more frequent, the more scanty; and, if it were possible to ascertain, with strict precision and correctness, the quantity of egesta, that ought to be proportioned to the ingesta, where the balance was equal, the diarrhœa, (if it did not produce debility) might be left to itself, without prescribing astringents, absorbents, opium, or other medicines. For it is probable, that the stools are necessarily loose, from the diseased intestine remaining tumefied, tender, and incapable of transmitting fæces of their healthy volume and consistence, and it might be almost considered natural to this state of it; hence, before the diarrhœa ceases, time must be allowed to the absorbents to remove the tumefied and newly organized parts, and to the exhalents and muscular fibres of the intestine to recover their healthy actions.

The diarrhœa continues from one to six weeks, and is generally accompanied with impaired digestion and some degree of emaciation. During the diarrhœa, solid animal food should be excluded from the diet.

The treatment should be conducted on the same principles, as have been laid down for the management of the diarrhœa during the continuance of ptyalism. All excesses must be suppressed: if the stools be frequent, loose, and

copious, they should be restrained by absorbents, aromatics, and opium, preseribed every six hours. As the evacuations diminish in frequency, looseness, and copiousness, or if they originally be not very frequent or copious, the draught should be ordered only twiee a day. If the stools become scanty, or are originally so, the opium may be omitted altogether.

If the evacuations, although loose, be not attended with tormina, do not induee emaciation, and do not appear to be too copious for the ingesta, it is in some cases preferable to administer dec : cinch : cum aeid : nitr : and aromatics instead of the mistura cretæ ; in some eases, where the stools were generally seanty, and the disposition to retention of fæces has been constant, it has been necessary to exhibit five or more grains of pulvis rhei daily, with decoctum cinehonæ, or bitters and aromatics.

The general rules for the exhibition of opium may be summed up in a few words ; as the number and copiousness of the evacuations decrease, we should, in a corresponding manner diminish the quantity of opium, or suspend its use, and *vice versa ;* and thus alternately increase or diminish, employ or disuse it, as the eireumstanees of the diarrhœa shall require. Should a retention of fæces be induced with the disagreeable symptoms attending it *(page* 142) we should resort to oleum rieini, or the use of pulvis rhei cum creta in moderate doses, and afterwards resume the mistura eretæ, or the other medieines mentioned.

It frequently happens, that the patient gradually reeovers his strength, appetite, and flesh, during a moderate state of diarrhœa : this is a favorable symptom, and seemingly indieates that the digestive organs are sound ; that the apparent state of diarrhœa is necessary to the remaining

derangement of the intestine, and will be removed in proportion as it recovers. It is in these cases, that we should not be so anxious to check it by astringents, absorbents, or opium, as to improve the general health, by bitters, tonics, aromatics, light diet, and gentle exercise.

If the diarrhœa, however, continue so long as to render it very probable, that the intestine has had sufficient time to recover from its previous derangement of structure, and yet does not cease; I would recommend the experiment of suppressing it, occasionally, by draughts of mistura cretæ cum tinctura opii, that it may be ascertained, whether it has been maintained from habit, or whether the intestine be still so much diseased that it will not accommodate itself to a healthy state of excretion: in the former case, no unpleasant symptom will follow its suppression, and the bowels will continue regular; in the latter, all the disagreeable effects of a retention of fæces will ensue, a mild aperient should be exhibited, and we should contentedly wait for a time the result of healthy changes, before the experiment is repeated. Should the morbid secretions of the intestines recur during the continuance of diarrhœa, the first variety of chronic dysentery will be formed. Should the diarrhœa continue obstinate, without yielding to the remedies that usually controul it; should time have been allowed sufficient to enable the intestine to recover from its derangement, and should the stools be of a whitish clay or blueish mud color, then we must infer that the liver has suspended its secretion of bile which is the cause of diarrhœa, and a mercurial alterative course should be combined with the treatment. This derangement of hepatic function sometimes occurs in every variety of chronic dysentery.

Section III.

Verum, tertium dysenteriæ exitum vidi, etsi raro obvenientem, at eo *difficiliorem sanatu*. Dysenteria nempe subinde remisit, ut et secessus rariores fuerint, et vix torminosi; torminosi tamen, multisque septimanis.

Hanc, chronicam dysenteriam, utut dolore pauco, brevi evanido, sub ipsa solum dejectione modice percepto, *stipatam præ acutissima dysenteria*, præque illa longa diarrhœa abominabar. Remedia, spesque nostras ut plurimum elusit, et ægros lentæ et certæ morti consignavit. Cadavera horum *phlogosin chronicam*, et duritiem, rigiditatemque intestinorum potissimum crassorum monstrabant. Stoll, *cap.* v. *Varii exitus Dysenteriæ.*

Of Variety A.

Diarrhœa is accompanied with an uniform continuance or a frequent recurrence of morbid secretions, and of intestinal secretions, and of intestinal pains at the periodsof evacuation.

This variety of chronic dysentery must be apprehended, and anticipated as a consequence of cases of the severe and inflammatory varieties, when they are not so violent as to induce ulceration or excoriation of the inner coat of the intestine. Although the more acute sufferings be removed, by the induction of ptyalism, in the acute stage, and the complaint then suffers considerable abatement, yet the morbid secretions are continued in a diminished degree; and whatever the evacuations may have consisted of before, whether of blood, serum, or mucus, or of these combined, the secretion now thrown out is, in general, mucus, mixed

with serum, or only mucus : if the case proceed favorably, the serum gradually disappears from the evacuations, and mucus alone is excreted ; this gradually diminishes in quantity, and at length ceases to be secreted in any morbid or unnatural proportion. A mild case may terminate in this variety, if the patient have had repeated attacks, or an accompanying liver affection be not removed by ptyalism in the acute stage. During the continuance of the secretions, the state of diarrhœa, described in the last section, prevails, with this difference—that the evacuations occur in this variety more frequently, and with more pain, in consequence of the intestines being stimulated to action, both by vitiated secretions and loose fæces. The diarrhœa continues after the morbid secretions have ceased ; at length, the frequency of stools is diminished, their consistence becomes harder, and their natural volume and consistence are finally restored.

In this variety, there is an uneasy sensation, or pain of the bowels for some days, more particularly felt on pressure, which gradually abates ; and it is often accompanied with returns of tormina and tenesmus. Debility of the digestive functions and emaciation are induced, from which the patient gradually recovers, as the intestines become restored to their healthy state.

The morbid secretions and a discharge of blood are liable to recur, and be increased by every circumstance, which increases the action of the arterial system, and of the secretions depending upon it. They are thus increased, by the intemperate use of ardent spirits, vinous, or fermented liquors ; by stimulating food ; by too much exercise, or exposure to the sun ; or by a retention of fæces occasioning

some degree of fever, and hurrying the circulation; by checked perspiration, determining a larger proportion of blood to the vessels of the diseased intestines; and by undigested food passing through and irritating them. This increase of secretion is sometimes attended with pain of the abdomen, fever, and symptoms of inflammation. The diarrhœa is increased by the intemperate use of spirituous, vinous, and fermented liquors; by improper diet, undigested food, and, in some instances, by cold. The morbid secretions of chronic dysentery must be attributed to a continuance of the increased or inflammatory action of vessels commenced in the acute stage, but now under some difference of modification; as we often observe the mucous secretions of the Schneiderian and pulmonary membranes continue in the chronic form, with cough, &c. after the acute stages of inflamed or increased actions of these membranes have terminated: so we have also seen, that the intestinal secretions gradually become thicker, before they ultimately cease, similar to what takes place in those mucous membranes, in their chronic form of disease.

The continuance of chronic inflammation,* of morbid secretions, and other circumstances, chap. vii, sect. ii. still maintain the diseased intestine in such a deranged and tumefied state, as to resist the passage of fæces of the natural volume and consistence; and hence it is, that the discharge of loose fæces continues until, and some time after, the morbid secretions cease, and the derangement and tumefaction are removed. The indications of cure are, to obviate the local arterial determination and preternatural capillary action of the diseased intestines; to diminish the

* See the quotation from Stoll, this section.

dysenteric secretions; to check diarrhœa, where it is too copious; to obviate retention of fæces; to avoid all occasional causes of relapse, (page 147;) to restore the digestive functions, and promote the general health.

The first indication may be fulfilled by a continuance of the antiphlogistic regimen; rest; diuretics; diaphoretics; and a bland diet, from which solid animal food is excluded. For, in the increased secretions of all the mucous membranes, we are not possessed of any proper means of diminishing increased vascular action locally, that do not lessen it generally, by calming the circulation and moderating the action of the heart and arteries, (unless it have continued so very long as to become the effect of habit,) and this plan of treatment must be persisted in, as long as pain is felt on pressing upon the inflamed part, or much is experienced when the ingesta, &c. are transmitted through it.

Should the morbid secretions continue, after pain and every other symptom of inflammation have disappeared, and the duration of the secretion can be reasonably attributed to a long established habit of acting, as it is in the gleety discharge from the mucous membrane of the urethra after gonorrhœa, or in old chronic coughs that are benefited by myrrh and the warm gums, or balsams; then the intestinal astringents should be prescribed. The mineral acids, with decoctum cinchonæ and carminatives, have often the effect of diminishing them considerably. Although it be probable, that no medicine like these, or any that are called intestinal astringents, can be directly applied to the diseased portion of intestine, in the pure state they are swallowed, without being changed by, or mixed with the other contents of the stomach and intestines, yet creta præparata, testæ

præparatæ, and boles and earths, may be prescribed with this view, as possessing from their insolubility a considerable chance of being so applied. Should, however, the rectum or sigmoid flexure of the colon be the diseased portion of intestine, then astringent enemas formed of alumen, liquor plumbi acetatis, sulphas zinci, liquor calcis, &c. with proper mucilaginous and demulcent vehicles, are of use, and become directly applied to the secreting surface. The food should consist of bread puddings, sago, congee, mucilaginous soups or jellies, arrow root, &c. With these, mucilages, powdered gums, absorbent earths, and gentle astringents, such as the juice of pomegranate, might be mixed, with a view of preventing the food from stimulating the diseased intestine in its transmission through it. The drinks, on the same account, ought to be mucilaginous and demulcent; the juice of the pomegranate, or light astringents, might be mixed with them, or the absorbent earths and boles infused in them with advantage. All bland and mild food and drink may be used, and every thing stimulating avoided, especially spirituous and fermented liquors.

As it is observed in coughs, consecutive to catarrh, rubeola, and pneumonia, that the mucous secretion of the pulmonary membrane diminishes, as the patient's general health becomes restored; so, also, the secretions of chronic dysentery diminish, as the digestive functions and general health progressively improve; and, hence, stomachics are indirectly useful, and conduce to the suppression of the morbid secretions.

The diarrhœa should be vigilantly watched, for it is very dangerous, when rapid and increasing exhaustion follows every successive motion, and the treatment conducted on

the same principles that have been laid down for its eure, in the last seetion.

The occasional eauses of inerease should be avoided. The particular remedies for checking diarrhœa should be preseribed, when it is copious and *induces debility*, to the exclusion of those medicines, which are exhibited with a view of diminishing the seeretions. When it is moderated by those means, if the patient's general health improve daily, and the diarrhœa and morbid secretions gradually diminish, then no alteration should be made in the treatment; the cretaceous medicine, with opium, may be persisted in with advantage, as the secretions will diminish, in the ratio that the general health improves. When the pain in transmitting the fæces through the diseased portion of the intestine continues, *after the inflammatory symptoms of dysentery have been entirely removed*, preparations of opium should be administered to allay the sensibility and irritability of the intestine (*page* 79-80.) If opium be in use to check the diarrhœa, that formula will be sufficient. I have often found from five to ten grains of pulvis ipecacuanhæ compositus, united with carminatives, and administered every six hours, highly useful for this purpose. The quantity of opium should be proportioned to the degree of pain; and fomentations should be applied to the abdomen during any painful passage of the fæces.

Any retention of fæces or of morbid seeretions should be immediately obviated by a dose of oleum ricini, or pulvis rhei; for retentions are sometimes induced by the use of opium, astringents, and absorbents.

In this and other varieties of ehronic dysentery there is

an occasional state of the intestines to be met with, which (independent of the use of opium and astringents) disposes to a peculiar retention of fæces.* It is probable, after the acute stage, that the diseased intestine still feels an indisposition to transmit the fæces, or has a disposition to resist their passage, from the pain induced in transmitting them, and thus conduces to a retention of fæces, as we observe in the different quinseys, an indisposition to swallow; in gonorrhœa, a dread of making water; and in lately inflamed muscles, an indisposition to move, as long as motion occasions pains. This state of retention it is difficult to detect; for the patient, at the time, has frequent stools, which are not very scanty, but in sufficient quantity to impose upon his judgment, and induce him to describe his complaint as a free and troublesome purging. A strict investigation enables us to ascertain, that the evacuations are not succeeded by the sense of ease and emptiness, which follows the copious stools of diarrhœa, or the complete discharge of superabundant fæces; that the patient is still uneasy, is troubled with flatulence, gripes, and pains in particular portions of the intestines, with occasional tightness, hardness, or swelling of some part of the abdomen, with flatulence of the stomach, decreased appetite, and a general nervous irritation. The evacuations of mucus and morbid secretions become more copious or more numerous, and are often attended with tenesmus and tormina. Indeed, in every variety of chronic dysentery, it may be observed, a retention of fæces of any kind is accompanied with these symptoms,

* The term retention of fæces has been throughout preferred to constipation, because in the chronic stages of dysentery some loose fæces are generally discharged at each evacuation, and the fæces are perhaps never confined many hours in a hard compact state in the rectum and colon, as in common constipation.

in a greater or less number or degree. A purgative of castor oil (or any other appropriate one, where it disagrees) should be prescribed as often as the symptoms occur, and relief will generally ensue.

The purgative may be followed by an aromatic anodyne, with great advantage, to soothe irritation where it has been previously great, or to induce sleep, where there has been much previous restlessness. If, however, astringents or opium be given previous to the operation of the cathartic, they sometimes afford no, and at most only a temporary, relief, but often contribute to the aggravation and prolongation of the complaint.

Should very severe tenesmus or tormina, the affections of the stomach, or genital organs, or any other particular symptoms occur in this or in the other varieties of the chronic stage, the palliative remedies adapted to their removal in the acute stage will be found equally applicable and advantageous.

A judicious exhibition of the remedies, and a due observance of the rules of conduct and regulations of diet, that have been laid down, generally ensure an uninterrupted progress to recovery;* while a deviation from them, or a disregard of their use, occasions relapses, interrupts the recovery, and renders the disease of indefinite duration. Thus, in this variety it is peculiarly necessary, that the patient should possess much command over his appetite and inclinations, and observe a mild, bland, and light diet, re-

* This prognosis differs widely from the frightful one of Stoll, at the head of this section.

gular habits, and rigid temperance; for it sometimes happens, that the stomach regains its appetite before the diseased state of the intestine is removed, and the patient cannot be induced to control an inclination to eat substantial solid food, and improper dishes, which from his feelings he deems it natural to indulge in: the consequence is, that the stimulus of animal food and imperfectly digested cookery, increases the diarrhœa and morbid secretions, occasions tormina and tenesmus, and by imprudent repetition, establishes a habit of secretion of the vessels of the diseased intestine, which it is extremely difficult to cure, which is very easily re-produced, *and which sometimes terminates in death.*

A habit of intemperance is a still more dreadful evil, for the stimulus of inebriating liquors not only quickly reproduces a severe relapse, by increasing the action of the heart and arteries, but deranges the whole system, exhausts the vital power, renders recovery always doubtful, and sometimes rapidly induces death.

Captain B——-, of the marines, was recovering from dysentery; his bowels were regular, but the fæces were still mixed with a small quantity of morbid secretions; his appetite was tolerable; his sleep sound; his strength improving; during the afternoon and night of the 1st of May, 1807, he was thirsty, and he imprudently drank a considerable quantity of brandy and water; on arising in the morning, he was exhausted, and could not stand; the day, at Prince of Wales's Island, was calm, hot, and sultry, he perspired profusely, and was very faint and languid; the diarrhœa returned, with an increase of the morbid secretions, and loss of appetite: the stools were loose, copious, and

debilitating, and each successive one increased the debility; opium, aromatics, absorbents, and astringents failed in producing the slightest benefit, and never arrested the gradual progress to exhaustion and death, which ensued on the 4th, at night.

Captain C———-, of the 1st regiment, or royals, was received on board His Majesty's ship Belliqueux, at Madras, June 22d, 1808, to try the effect of sea-air, in curing an obstinate chronic dysentery of this variety. He informed me, he had been subject to relapses, for which he assigned no satisfactory reason. The stools were copious, loose, rather frequent, mixed with morbid secretions, and sometimes undigested food; he was weak and emaciated; his appetite was bad; and he was occasionally affected with tenesmus and tormina. ℞. Confectionis aromaticæ scrupulum unum, opii granum unum, misturæ cretæ unciam unam et dimidium, *olei* menthæ piperitæ guttam unam—ft haustus 6^{is} horis sumendus. The diet consisted of congee, panada, sago, tea, and chicken broth. Two glasses of Madeira wine were allowed, as he was a free liver. In three days, the patient left his bed; his bowels became regular; the morbid secretions had nearly ceased, and his debility was diminishing. In seven days, he was apparently free from all complaint, and his strength was much increased; he was enjoined to eat tender meats, such as chicken, to be moderate in the quantity, to abstain from malt liquors, and to be very temperate: his medicine, which had been only taken twice a day, the last three days, was now omitted, and he took some decoctum cinchonæ with nitric acid, and aromatics. On the 12th day, he was astonishingly recovering; on the 13th day, he drank some beer, a bottle of claret, and some Madeira wine. A relapse succeeded on the fol-

lowing day, but the same regimen and medicine soon suppressed the complaints. On the 20th day, after the example of an intemperate officer, he drank a tumbler of strong arrack punch at breakfast-time; the day was hot; in a few minutes, a sudden sensation of faintness and debility compelled him to lay down, and request fresh air; a profuse sweat burst forth; he became sick; in two hours, a diarrhœa, and a return of morbid secretions were induced, with tenesmus and tormina. The stools and secretions were copious and debilitating: the old prescription and regimen were resorted to, but now failed to produce their beneficial effects. Aluminis grana quinque were added to each dose, and tincturæ opii minima viginti, were substituted for the grain of opium, but without effectually suppressing the complaint. The diarrhœa and morbid secretions had diminished on the 21st of July, when he returned to Madras. He was invalided to Europe, where intemperate habits may be indulged with more impunity: he, however, had frequent subsequent relapses, one of which destroyed him, on his passage home. Thus were lost to the country, two officers possessed of many truly amiable qualities, by an unconquerable attachment to the poisoned chalice of Ceres.

Henry Thompson, aged 38, a seaman, was attacked with the severe variety of acute dysentery, July 11th, 1807. The stools consisted of mucus, blood, and a caseous substance; were frequent, and attended with tenesmus and tormina; the fæces were obstinately retained. Cathartics were actively employed, with calomel, ipecacuanha, and diaphoretics; a flannel bandage was rolled round the abdomen; and from the 14th to the 16th, unguentum hydrargyri fort. was rubbed on it. On the 17th, ptyalism was induced, the bowels became easy, he had passed only one stool since

yesterday, which was copious and regular; the morbid secretions were no longer observed. Ordered to take pulveris ipecacuanhæ comp. grana quinque, if he should be purged. The bowels continued regular without medicine, during the ptyalism, which subsided on the 27th: the diet had been light; the appetite and strength were daily improving. On the 28th he began to eat more freely. From the 20th of July he had taken tincturæ ferri muriatis minima viginti, twice a day, in aqua menthæ piperitæ. On the 2d of August, a slight diarrhœa, with some morbid secretions, returned, but were checked by mistura cretæ, opium, and oleum menthæ piperitæ. On the 5th, the purging recurred, the stools were copious and frequent; secretions of mucus, some blood, serum, and coagulable lymph, were mixed with the stools, and sometimes passed without fæces; the tormina and tenesmus were particularly severe, the straining and bearing down being great and almost constant: utatur fotus sæpe abdomini. ℞.—Opii grana quinque, decocti oryzæ frigiduli uncias quatuor. Solve bene, ut fiat injectio alvina manû pro semihorâ retinenda. ℞.—Pulveris ipecacuanhæ comp. grana quinque, olei menthæ pip. guttam unam—ft pulvis 6^{is} horis sumendus. 9th. The injection removed the tenesmus and tormina, and he became quite easy and slept much; the evacuations have ceased, and he is in better spirits: repetantur injectio et pulvis. 10th. Had no stool for eighteen hours after the injection, is perfectly easy, feels better, and has only had one stool, (which was loose,) the last twenty-four hours: repetantur medicamenta. 11th. The bowels are regular and easy, and he feels much better: capiat pulverem horâ somni, et pro rê natâ. Omittatur injectio. Similar relapses, however, took place on the 13th, 19th, 26th, and the 7th of September. The diarrhœa and morbid secretions were

considerable after the 10th; on the 15th of September, I detected this man frying dry salt-fish in rancid fat, at the kitchen fire, when he confessed, that all his relapses had been occasioned by eating this fish, or fried ding-ding.* From this period, the anodyne injection, the absorbent mixture, with opium, carminatives, aromatics, and astringents, failed to produce permanent benefit. The diseased action was habitually established, the bowel complaint was alternately better and worse, but he progressively became weaker and more emaciated; for, at sea, a sufficiently light and nutritive diet could not be procured for him: he was sent to the hospital, at Malacca, October the 3d, and eventually died.

Many instances of the bad, and some, of the fatal effects of imprudent indulgence of appetite might be adduced. Hence, the event must be doubtful, and the period of recovery, of imprudent and intemperate patients, must be ever indefinite and uncertain, and their cases leave much cause for regret; for when the acute stage of disease has been happily conducted to a progressive advancement to recovery, and the medical attendant begins to feel the satisfaction derived from the successful exertion of his talents and experience, and the appropriate application of his remedies; a debauch in eating or drinking, or an improvident mistake causes relapse. With such patients I have often known this variety protracted five or six months, and even longer. Where, however, the patient can govern and regulate his propensities, and conform rigidly to rules of living, and the

* Ding-ding is the Malay term for bullock's or buffalo's flesh dried in the sun, of which, and the fish, we had captured a large quantity, in some Dutch vessels.

treatment is well conducted, a cure may be effected in two, three, or four weeks, or, at all events, may be sanguinely anticipated in six or eight. If regularity of life be observed, the improvement of the general health keeps pace with the amendment in the state of intestinal disease.

Almost every patient has ascertained his dietetic peculiarities, and knows those articles which agree or disagree with his stomach, when in health; but, if he continue to estimate his powers of digestion, after an acute stage of dysentery, by their standard in health, he will be liable to commit injurious and even dangerous mistakes. His Excellency the Hon. P—p D—nd—s, Governor of Prince of Wales's Island, was affected with this variety of chronic dysentery, and became strongly impressed with a notion, that a voyage to sea would speedily cure him. He was received on board His Majesty's ship Belliqueux, April 1st, 1807, at Port Cornwallis, and we stood over for the coast of Sumatra, where he expected to meet strong and refreshing sea breezes.—Mr. T. W—— accompanied him as his surgeon. He had been most ably conducted through the acute stage by the late worthy Mr. Heriot, and at this period, the stools were not frequent, nor were the morbid secretions copious, but he was weak and emaciated; he had been taking hydrargyri submurias, ipecacuanha, and occasionally opium. His disease diminished, and his appetite improved, although we did not meet the refreshing breezes he expected, and sultry calms were prevalent. He slept well on the night of the third, and on the fourth felt himself better, partook of a good breakfast and dinner, with a little good wine; in the afternoon he drank two cups of coffee, which, in a short time, felt oppressive to his stomach, and occasioned flatulence, heat, thirst, and fever:

he sent for me, and having formed a belief that the coffee was the offending matter, I advised him to wash it off his stomach with warm water, or chamomile infusion, and directly reported my advice to his attending surgeon, who over-ruled it, and gave the Governor some brandy and water to settle the stomach; but this not proving effectual, Mr. W. afterwards prescribed tincturæ opii minima xxv. in some bitters. The oppression of the stomach still continued, with fever and restlessness, until its contents were passed into the intestines, the seat of disease, where they excited tormina and tenesmus, and increased the diarrhœa and morbid secretions. April 5th, the irritative motions, excited by the opium and various stimulants, and from sympathy with the stomach; the frequent evacuations; and sultry heat, have greatly exhausted his strength; his appetite is lost, the diarrhœa and discharge of morbid secretions have become debilitating, and every successive stool increases the debility, although the fever has been removed by the evacuations. It now became necessary to prescribe opium, with creta and aromatics, to check the intestinal evacuations, to induce sleep, and allay the irritation: the exhaustion, however, of sensorial power had been great and rapid, and was irrecoverable; his strength gradually decreased; the purging continued its debilitating effects; the extremities became cold; cold sweats supervened; the pulse became weak and small; and he breathed his last. at 9° 30′ A.M. on the 8th. This case (and indeed many others) evinces the necessity of avoiding all articles of diet, that have a chance of disagreeing, of which coffee is one, and establishes the propriety of promoting, by vomiting, the rejection from the stomach of any article of food or drink that disagrees with it, instead of forcing it by stimulants to pass through the intestines, where it never fails to excite

dangerous irritation; at least my experience gave the preference to the practice here recommended. Beef and plumb-pudding are the most common articles of diet, that disagree *violently* with the sailor, but beef is his daily allowance, whether sick or well!

The intemperate, the ill-advised, and the willingly imprudent, are not the only sufferers from dietetic errors. Those patients who seek for amusement at the social board, and find delight in that society, which their minds are often formed to instruct and entertain, sometimes suffer from an unconcious error at the moment; while the attic wit enlivens, the classic lore deeply engages attention, the historical narrative interests, or the merry tale absorbs all thought, the inspiring glass circulates, and he may unwittingly sip the wine, or partake of the insidious desert, until he finds, too late, that he has drank or eaten of the "forbidden fruit" beyond the prescribed allowance of reason and prudent resolve. His Excellency T. M——, Governor of Ceylon, embarked at St. Helena, in the Belliqueux, June 8th, 1811, on his passage to England, for the recovery of his health. He had been afflicted several months with chronic dysentery, which had more than once assumed a dangerous appearance. The evacuations were rather frequent and mixed with mucous secretions; he was weak and emaciated, and took decoctum cinchonæ, with acid: nitricum, and tinctura opii. During his stay on board, he sustained two or three slight exacerbations from sipping too much wine and water in the evening conversations, and on the occasion of a complimentary party being given him, fever and restlessness were induced during the night, which were succeeded by bilious vomiting, and an increase

of diarrhœa and morbid secretions, that were at length removed by rest, sago-soup, diluents, and opium, but yet greatly deranged him. Let those who suffer from this cause, take their meals in their own rooms or cabins, and seclude themselves from society. In cases of long duration, it sometimes happens in this and the variety C, that the appetite, strength, and flesh become restored before the bowels are perfectly regular; the stools continue lax and more frequent than natural, and the bowels are easily stimulated to diarrhœa, by imperfectly digested food: in these cases, the stools imperceptibly diminish in frequency and looseness, although occasionally increased, and in a month or two become regular.

When an habitual diarrhœa, and an habitual action of the intestinal vessels and glands, producing the morbid secretions, are established, from intemperance, an improper indulgence of appetite, or any other cause, and are long protracted, remedies lose their effect by repetition, or the patient and surgeon become anxious of trying new remedies, where success is not conceded to those in use; hence it is, that so many various medicines have been recommended and discountenanced, extolled and decried, in this variety of disease, as they have happened to prove successful, or to fail, in the practice of different individuals. They are chiefly intestinal astringents, the use of many of which I shall state the result of in my practice, and which are highly proper, when the disease seems to be maintained by habitually diseased action.

The infusum simaroubæ or a decoction of it, have been recommended generally in the obstinate chronic stages of

dysentery; *(See Blane on Diseases of Seamen, &c.)* in my practice, it has shewn great powers of action, but these were of uncertain benefit. It was too apt to produce constipation, and its painful and disordered consequences. Its constipating effects appeared to be more disadvantageous to the patient, than its astringent powers on the morbidly secreting vessels were beneficial. I attempted to avail myself of its two powers by making it weaker or stronger according to circumstances, but found, that if too weak it had no evident effect, and if strong, it always occasioned constipation. Authors have not enabled us to discriminate the kind of cases benefited by the simarouba, although they have derived advantage from its employment in some instances.

The mixture of sulphas zinci and alum, recommended by Dr. Moseley, has nearly the same effects on the intestines, as the infusum simaroubæ, if there be an excess of alum. It is extremely difficult to adopt the proper quantity of alum to the astringent effect required: when it produces constipation, the morbid secretions, tormina, &c. are increased, and sometimes induce an actual relapse, and when the excess of sulphas zinci maintains a free discharge of natural fæces, the morbid secretions are diminished; hence, we should be careful not to employ too much alum.

When the diarrhœa and morbid secretions have been long continued, two grains of plumbi superacetas, made into a pill, have been prescribed, twice a day, for three days: I have been shewn cases by Dr. Ainslie, at the artillery hospital, at the mount of Madras, where this medicine was said to be strikingly useful: but I must confess,

that I cannot add much testimony of my own in its favor. In my own practice, it, like the other astringent remedies, has been too apt to produce constipation and its unpleasant consequences, an increase of morbid secretions, &c. although previous to the induction of constipation, the morbid secretions have been even diminished. In some cases, it checks the diarrhœa effectually. In others it has not exerted any evident powers, unless administered for a longer period than three days. During its exhibition, animal food should be abstained from. The enema recommended by Dr. Moseley with liquor plumbi acetatis has had effects somewhat similar to the plumbi superacetas, but in general is less constipating; but if there be good reason for believing, that the glands and vessels of the rectum or sigmoid flexure of the colon are involved in the morbid secretion, then astringent injections are peculiarly proper, and should be employed: such as decoctions of astringent barks, aqua calcis, &c.

Although the actual effects of these powerful astringents, (especially the simarouba and plumbi superacetas,) are twofold, and produce constipation, as well as a diminution or suppression of morbid secretions; yet as the diarrhœa can be suppressed by more simple means, such as mistura cretæ, with opium, and oleum menthæ piperitæ, it is concluded that the principal object in prescribing them, is the attainment of a suppression of the morbid secretions, and a consequent restoration of a healthy action. It must be granted, that they often display great astringent powers over the morbidly secreting vessels, but it must also be admitted, that if they induce constipation, the morbid secretions are often subsequently and ultimately much in-

creased, and it becomes necessary to abandon the medicines on the induction of constipation. If the constipating effects of these astringents could be generally obviated, by the combination of a defined quantity of any purgative medicine, which would not decrease their astringent effects on the morbidly acting vessels, then it would appear, that the desideratum for the cure of this stage of this variety would be obtained. Rhubarb, from its slightly astringent principle, and diuretic powers, is, perhaps, the most eligible medicine to try in combination. It must be acknowledged, that, in the experiments I have made, I have found the action of these astringents so sudden and irregular, as to preclude the possibility of an uniformity of result, and my trials have not been so numerous, as to enable me to decide satisfactorily, upon the future probability of acquiring the desideratum: five grains of pulvis rhei once a day, with decoctum cinchonæ and sulphuric acid thrice a day, have now and then succeeded, aided with occasional opiates.

It may be observed, that, in recent chronic cases, when the morbid secretions are rather copious, and the intestine considerably diseased, it is very probable, their constipating effect will subsequently produce so much increase of disease, as will always outbalance every good, their astringent powers on the morbid vessels might effect. Their use, then, should be deferred to later periods, when less evil consequences are to be apprehended from them. In old cases, when, it may be supposed, the diseased action is almost worn out, and the patient is perhaps recovering his general health fast, their sudden astringent effect may suppress the increased secretions immediately, and not produce so much constipation, as to superinduce a return of them; as we

sometimes see astringents, externally applied, suddenly remove an increased secretion of long continuance, in cases of intertrigo.

It was my intention here to have given detailed cases illustrative of the effects of these astringents, or intestinal sorbentia, as they are called by Dr. Darwin, but I waive it from the extreme length of a chronic case, and shall content myself with a particular history of the period, when these astringents were prescribed.

Wm. Griffiths, ætatis 33, a fat, corpulent butcher, was attacked with the severe variety of dysentery on March, 23d, 1810. The acute stage was subdued by cathartics, diaphoretics, and the use of hydrargyri submurias, until ptyalism was excited. On the 10th of May, it was observed, that, for two weeks past, the morbid secretions had sometimes increased, and sometimes the diarrhœa, tormina, and tenesmus. He is still weak. Last night he had two loose fæcal stools and several of mucus; ℞. Corticis simaroubæ et pulveris zingiberis, sing: drachmam unam, aquæ octarios duos—coque ad octarium unum. ft decoctum simaroubæ,*—Capiat uncias duas ter die. He was purged five times in the course of the day, and took pulveris ipecacuanhæ compositi scrupulum dimidium hora somni.—11th. He feels better, and is less purged: rep^{r} decoctum.—May

* The same quantity of the bark is here used as in the infusum simaroubæ of the London Pharmacopœia.—The following formula was in use at the Madras Hospital.—R. Simaroubæ corticis unciam dimidiam, cascarillæ corticis drachmam dimidiam, aquæ ferventis octarios duos.—Coque per horam unam & cola.—Capt. ℥ij ter die, vel tertiis horis.—I found it much too powerful, except in lienteric cases.

12th. He has had seven stools since last evening, attended with tormina; that inspected this morning, consists of a thin sanies and clots of blood; he continues to be griped: ℞. Olei ricini et aquæ menthæ piperitæ, singulorum drachmas sex. ft haustus statim sumendus. This brought away much fætid fæces, which clearly denoted their previous retention; he soon felt relieved, and at bed time, took pulv. ipecacuanhæ co. gr x. 13th. The bowels are easy and only lax, the morbid secretions are diminished: ℞* Decocti cinchonæ ℥ij. Pulveris rhei gr. v. ft haustus hora xj, A. M. sumendus, et vespéri repetendus sine rheo. The morbid secretions continued to diminish, and the bowels to be lax, until the 24th; *when a catarrh and cough supervened, and the bowels in consequence became regular, and the morbid secretions permanently ceased.* On the 25th, a cathartic was even necessary to obviate constipation; after the 26th, the intestines were perfectly regular. The catarrh and cough were cured by antimonials, and diaphoretic diluents, and he was sent to duty, on the 11th of June.

In this case retention of fæces and its consequences were soon induced—in the following case it rather increased the diarrhœa.

James Moore, ætatis 23, a marine, had been affected with chronic dysentery, since the 17th of April: in the latter end of May, and in June, three distinct trials were made of

* The decoction of bark was always made by me in the East Indies, agreeable to the following recipe—Cinchonæ corticis contusæ unciam, pulveris zingiberis unciam dimidiam—coque per sextam horæ partem in vase leviter clauso, et liquorem adhuc calentem cola.

the decoction of simarouba, but in every instance the purging eventually increased under its use, and became debilitating, although two grains of opium were prescribed at bed time, during its use, on the 29th, 30th, and 31st of May, and 1st of June. On its first exhibition, it appeared to be rather useful. The mistura cretæ cum opio, et oleo menthæ pip. was more successful.

It appears to me, that, in some cases of chronic dysentery, the digestive powers are so debilitated, as to be unable to alter the decoctum simaroubæ, and hence, in its passage through the intestines, it excites irritation, and consequent diarrhœa.

John Nagington, æt, 23, was invalided at Trincomalee, on account of chronic dysentery of this variety, and was received on board His Majesty's ship Belliqueux, June 19th, 1810. He had been salivated in the acute stage. He was much emaciated, and his stools continued frequent, and were composed of morbid secretions and fæces. He took mist: cretæ cum opio, with advantage, and was put on a diet of congee, sago, and fowl. He afterwards had decoctum cinchonæ and sulphuric acid, and then reverted to mistura cretæ. On the 6th of July, he had been alternately better and worse, the secretions being sometimes increased, and sometimes the diarrhœa. He was purged this morning, and had several mucous stools in the evening: ℞. Decocti oryzæ ℥iv, liquoris plumbi acetatis ʒj. ft enema bis die utendum.—July 7th. He had frequent natural stools last night: rep^{r} enema bis die, et cap^{t}. mist. cretæ cum opio bis die. He has abstained from animal food.—8th. The patient feels great pain across the bowels, and has had very frequent evacuations attended with tor-

mina ; on inspection, the stools were seen to consist of blood and mucus only ; he has lost his appetite, and feels very unwell to day : ℞. Pulveris rhei ℈j, hydrargyri submuriatis grana quinque, olei menthæ pip. guttam I^{m} ft pilulæ v. statim sumendæ, et cap^{t} pilulam ex ipecacuanha et calomel. 6is horis. In the evening the physic had operated, but the pains continued severe, together with tenesmus. Applicatur emplastrum lyttæ abdomini, et injiciatur enema anodynense.—9th. The enema procured several hours sleep, and the tenesmus and pains have abated ; he has had five stools like a dark green jelly : rep. pilula.—10th. Has had four fætid stools, of a dark green color, and of the consistence of jelly : rep. pilula, et capt^{t} opii granum unum, hora somni, as he was rather too much purged.—11th. Had three scanty slimy stools last night, but slept much better, and feels better : rep^{r} med. ut heri. The calomel was continued twice a day, until the stools became natural, when the remedies for the chronic stage were again resorted to, according to circumstances. In August, he began to recover strength and flesh gradually, and to regain his appetite. On the 1st of September, it is noted that he was becoming fat.—September 2d. He had only five loose stools of a mixed nature in 24 hours ; from the gradual amendment of his general health, I knew ultimate success to be certain ; I therefore again hazarded the trial of a preparation of lead : ℞. Plumbi superacetatis grana duo, ft pilula bis die sumenda.—3d. He has had five stools during the night : repetatur pilula.—4th. He had five scanty stools yesterday in the day time, and was griped : to day the pills have made him costive with respect to fæcal matter, but he has frequent dejections of serum, and is considerably griped : he has abstained from animal food : ℞. Pulveris rhei g^{r} xv, aqua menthæ pip. ℥iss ft haustus statim sumen-

dus : it was found necessary to repeat this draught at noon 5th. He has had some loose fæcal stools, but small in quantity ; he is mueh easier ; no morbid secretions are noticed in the stools : repetatur haustus e pulvere rhei, mane, et capiat haustum anodinen: vesperi.—6th. Had only one stool this morning, whieh was natural and eopious, and without an admixture of morbid seeretions ; the bowels were easy : ℞. Deeocti cinehonæ cum zingib. ℥ij, pulv. rhei grana quinque, ft haustus horâ xj A.M. sumendus, et rep^{r} vespere sine pulvere rhei. The bowels eontinued easy, the stools were not too eopious and beeame thicker, and his general health improved, until the 18th, when an error in diet brought baek a return of diarrhœa and morbid seeretions, and he did not reeover till the 8th of Oetober.

Jonathan Lane, ætatis 33, came on board under the same circumstanees as John Nagington, and the trials of the saturnine enema, and of the plumbi superaeetas were made at the same time. Neither of them produeed the slightest apparent effect. The plumbi superaectas was eontinued four days, when it was omitted from the unpleasant effeets produced on Nagington. On the 7th of September, it was observed, that his stools were black and of moderate consistence, with a very little mixture of morbid secretions. He was ordered the alterative pill every morning until the 11th, and then every other morning. He took the decoction of bark with five grains of rhubarb at xj A.M. and without the rhubarb in the evening. A grain of opium was taken every night at bed-time. By these remedies, the stools assumed their natural color ; the general health, appetite, and strength, whieh had been previously inereasing, were now rapidly recovered. On the 1st of October, the medicines were omitted, as the bowels were quite regular and continued so.

In the cases, in which the mistura aluminis and sulphatis zinci was prescribed, the results were the same. It diminished the diarrhœa and morbid secretions, until the alum produced a eonstipation, whieh obviated all its good effects, and I could not regulate the variation in quantity of the two medicines, so as to prevent it, and great nausea was produeed by any exeess of the sulphate of zinc.

From the effects of intestinal astringents in Nagington's, Griffiths's, and many cases I eould adduee, it seems probable, that a reverse sympathy is established between the secretions of the healthy, and the morbid secretions of the diseased, intestine; for when the secretions became so much diminished as not to render the fæces loose, and constipation ensued, the morbid secretions became uniformly increased, and in general were mixed with blood, and when the fæees again beeame loose, the morbid secretions instantly diminished. It is true, that the diminution of the quantity of healthy secretions in the stools may be occasioned, wholly or in part, by the inereased absorption of intestinal mucus: still, I think, the diminished seeretion is the most probable eause of its deficiency; for the loose state of fæees in diarrhœa is generally owing to the increased seeretion of intestinal mucus. It may, however, be sometimes attributed to the defeetive absorption of the more fluid parts of the ingesta, when the patient is weak, and the digestive powers much impaired.

It appears from these and other eases, that ultimate success is certain, when the patient's general health is gradually recovering, (for this indieates a healthy state of the chylopoetic organs,) although the exact period cannot be predicted, when the intestines will recover their perfect

regularity of action; the morbid secretions will wholly cease; or due organization, and perfect health and strength, will be restored: these events are however gradually produced. In such cases, I have often contented myself, with making the patient observe temperance, and a light diet, and prescribing decocti cinchonæ, ℥iss, acid: sulph: dil: gutt. xx, twice or three times a day, with an opiate at bed-time, if the stools were too copious or frequent, and omitting it when the bowels were easy, and the stools not copious, and he has in general recovered.

There are other less powerful intestinal astringents,* which are employed on the authority of various eminent writers on this disease; the utility of their powers in curing this variety of chronic dysentery should be estimated by the beneficial degree of astringency and curative action they exert over the morbidly acting vessels of the diseased intestine, without producing an injurious retention of fæces, and by the degree of general health they promote. Of these the liquor calcis employed by Dr. Grainger† cannot be much objected to, and is famed for curing a Royal Duke.—*(See Sir G. Blane's Work.)*

* The following list of astringents or sorbentia affecting the intestines, is from Dr. E. Darwin, vol. ii. page 516.

1. Rheum, gallæ quercinæ, tormentilla erecta, cinquefoil, potentilla, red roses, uva ursi, simarouba.

2. Logwood, succus acaciæ, dragon's blood, terra japonica, mimosa catechu.

3. Alum, earth of alum, armenian bole, creta, chelæ cancrorum, white clay, cemolia, cornu cervi calcinatum, bone-ashes.

To these may be added with propriety, acidum nitricum & sulphuricum, cinchona, kino, cortex granati, cusparia.

† Physical and Literary Essays.—*Art.* 14.

The amiable Dr. John Hunter states, the extract of the lignum campechense to be a good astringent in cases where the stools are frequent and copious, and without griping or pain, as well as the cortex granati and terra japonica. They were used in the order of succession when the first failed; but he is unable to inform us to what particular cases they are adapted.—*On Jamaica Diseases, 2d edit. page* 187.

There are other remedies employed in long chronic cases, with a view of increasing the secretions from other glands and organs, and which probably benefit by promoting an increased absorption in the diseased intestine.

The copaiba is said to have sometimes had success, but in other cases has not shewn any useful powers. In my worthy friend H———'s case, it shewed no useful powers, and it was equally unsuccessful in the few trials I made with it. It is however a mild, safe medicine, and is entitled to its tour, in the very obstinate chronic cases sometimes met with, among the variety and changes of symptoms and of medicines prescribed.

An infusion of the roots of ipecacuanha taken before breakfast, so as to sustain continued nausea for a considerable time, and finally to evacuate the bowels, is a remedy much used by some East India practitioners, and diminishes the morbid secretions, probably by increasing absorption. The patient acquires a distaste for this practice. An alterative course of calomel, or any other preparation of mercury, has been frequently attended with considerable advantage, more especially if slight ptyalism or soreness of mouth be maintained for three or four weeks, and has led to a permanent cure; probably by its subduing chronic phlogosis

or inflammation of the intestine or liver in some cases, and in others by changing the habitually diseased action of vessels. This treatment is particularly adapted to those cases, where the fæces lose their natural color, from defective secretion of bile; and to the cases of those ill-fated patients, with ungovernable appetites; as the soreness of mouth enables us to elude the effects of their imprudence, by compelling them to observe a mild and bland diet.—*See Variety C. sect.* v. The increased secretion of saliva, in other cases, is probably useful, by promoting absorption from the diseased intestine. An interval of time should be permitted to elapse after the first salivation, before the alterative course is instituted.

Counter secretions or irritations, by means of perpetual blisters on the abdomen, will be found beneficial for a time, until the constitution is habituated to them, if they do not produce irritation of the bladder.

I have been treating cases, where the secretions of chronic dysentery have been suppressed on the induction of an inflammation or an increased secretion of the bronchial and nasal membranes, in catarrh and cough, and I have known the morbid secretions to return, as the cough and catarrh have been removed. In most cases, as in Griffiths's, (this sect.) the cessation of morbid secretions was permanent, and in others they returned as the cough ceased, beautifully illustrating the commutation of increased action, between the intestinal and pulmonary mucous membranes, insisted on in the chapter on predisposition.

In very obstinate cases, would not these facts justify us in proposing the artificial induction of coryza and catarrh?

Might it not be particularly useful in those cases of Europeans, whose predisposition to catarrh in Europe is changed to a predisposition to dysentery in tropical climates?

In this variety, a proper degree of warm cloathing should be observed, and the abdomen in particulur should be kept warm.

Upon the whole, I am of opinion, the most beneficial effects will be produced in this variety in the shortest time, by persevering in the use of the antiphlogistic regimen, as long as symptoms of acute or chronic inflammation continue, and when they are removed, and the dysenteric secretions appear to depend upon an habitually diseased action of vessels; by prescribing the mild intestinal sorbentia, especially those that also invigorate the system and strengthen the digestive organs, as the decoct. cinchonæ, and mineral acids; by checking diarrhœa, when too copious, with mistura cretæ and other absorbents, opium, aromatics, and carminatives; by obviating retention of fæces when it occurs, with the oleum ricini, aut pulvis rhei, aut pulvis rhei cum hydrargyri submuriate; by removing or mitigating tormina, and the painful sensitive motions or irritations, when they occur, with opium, carminatives, aromatics, and fomentations; by observing a bland and light diet, and using mucilaginous and demulcent drinks, with which any of the mild sorbentia, as creta, pomegranate, the boles, or red roses, may be mixed or boiled, to render the fæces as little stimulating as possible, and to sheathe the diseased intestine from the stimulus of morbid secretions; by avoiding all the occasional causes of relapse; by speedily obviating the effects of an error in diet or of intemperance, either by immediately rejecting the offending matter from

the stomach, or by determining it through the intestinal canal, and then soothing the irritation excited; by avoiding checked perspiration, particularly if it determine to the diseased intestine; by palliating any particular symptoms by the remedies noticed in acute dysentery; by keeping the body, and especially the abdomen, warm with proper cloathing; and, finally, to try, after a proper interval, an alterative course of mercury.

During the continuance of a long chronic stage, the powerful astringents may be occasionally employed for a short time, with a chance of permanent success, but with a full determination to relinquish their use, if no practical advantage be derived from them.

By these means, in succession or combination, a permanent cure will in general be accomplished; *for the fatal cases are much confined to the class of intemperate and imprudent patients, who bring on severe and mortal relapses:* but if they all fail, changes of climate must be recommended, or native climate resorted to, for, by their influence, beneficial changes may be induced in the general health favorable to recovery, and superinduce a state of the animal and vital powers, in which the repetition of remedies, previously unsuccessful, may conduct the disease to the most happy termination.

This variety is sometimes changed into the variety C. depending upon excoriation or ulceration, but not so frequently in modern practice, as in former times, when almost every ulceration of the intestine was attributed to the "mordax humor," or morbid and acrid secretion.

Section IV.—*Of the Variety B.*

In this variety, the dysenteric secretions are continued, and often evacuated, while the bowels observe regular periods of evacuating fæces of natural consistence and color, the same as in health.

This variety occurs much less frequently than the preceding. In this, the patient has every day frequent evacuations of morbid secretions, which most commonly consist of mucus and serum, but blood is sometimes discharged with them for several days, and the stools are occasionally attended with tormina and tenesmus; during the period of every 24 hours, the patient has only one or two fæcal stools, considerable in quantity, of a proper color, and of tolerable consistence. The patient feels some uneasiness of the bowels, independent of the tormina and tenesmus, which occasionally accompany the evacuation of morbid secretions.

This variety admits of the most simple treatment, and is the most easy of cure.

The morbid secretions will be gradually diminished by the administration of decoctum cinchonæ, with the mineral acids, of which acidum sulphuricum has had the preference in my practice.

Great caution should be used in the employment of opium, for none should be prescribed, without some temporary symptom (as painful diarrhœa, or some painful sensation

or irritation,) calls for its exhibition; as it might induce constipation and its injurious consequences. The pulvis ipecacuanhæ compositus is a good form for exhibiting it, when necessary.

If tenesmus and tormina should become severe, which very rarely happens, an anodyne enema may be administered. If constipation occur, the mild purgatives, already recommended, should be employed.

Above all, it is necessary to control any inclination to indulge in improper diet, and to live temperate, and regular—as the recovery advances, the patient may be allowed light animal food, in addition to his farinaceous diet. In the progress of recovery, the number of evacuations of morbid secretions, and the quantity of them, gradually diminish, and at length finally cease. If blood were originally evacuated, it is changed for mucus or serum, before it finally ceases. The duration of this variety is from two to eight weeks, but is seldom protracted to the latter period.

Notwithstanding the regularity of the bowels is to all appearances confirmed by daily evacuations, it sometimes, though rarely, happens, that an insidious retention of fæces has occurred, and has been accompanied with scanty mucous stools; in these cases, I have known a large accumulation of hard, black, fetid fæces discharged by the use of oleum ricini, and the patient instantly relieved. The patient, who has once suffered this insidious accumulation, is liable to returns of it.

In this variety the diseased action may be confined to the colon, and the rectum is probably so little diseased, as

to allow of accumulations of fæces, nearly equal to what occurs in health, or wholly so.

I shall adduce one case of this variety, by way of illustration.

Wm. Shrowther ætatis 24, was attacked with acute dysentery of the severe variety on the 30th of May, 1809. The acute stage was very severe. On the first day, he complained of having had an evacuation almost every ten minutes, which was found, on inspection, to consist of blood, mucus, and serum; the stools were attended with tormina and tenesmus; he had pain around the umbilicus, but no fever; he took hydrargyri submurias grana sex statim, cum dose sulphatis magnesiæ et antim. tartarisati, and three grains of calomel, with nitre and antimonium tartarisatum every six hours. The solution of salts and antimony was continued till it operated. Perspiration was promoted by warm diluents. On May 31st, all the symptoms have been relieved by the purging and sweating excited: the calomel, antimony, and nitre were continued, until copious ptyalism was induced on the 4th of June, the mouth having been sore on the 2d. The cathartic was repeated on the 1st of June. Between the 4th and 10th of June, an increased secretion of bile, vomiting, and strangury, were induced, and the ptyalism was copious: they were relieved by the palliative remedies adapted to them—*See chap.* ix. From the 10th to the 18th, the bowels were in an unsettled state, being sometimes purged and griped, and some days regular with respect to fæcal matter, and easy, but he had always several evacuations of mucus and serum.—June 18th. Last night, he had one natural fæcal stool, and "four or five "mucous ones," the bowels are perfectly free from pain;

the ptyliasm has subsided, and he recovers his strength, flesh, and appetite:—℞. Decocti cinchonæ ℥ij. ft haustus ter die sumendus—light diet; congee and barley water for drink, with a little wine.—June 19th. He has had one natural stool, and "some slimy ones" since yesterday: rep^{r} med^{a}. 20, 21. He acquires appetite and strength, the bowels lax: rep^{r} med^{a}.—22. The bowels are regular in fæcal evacuations, but he has occasionally a "slimy stool:" rep^{r} med^{a}.—23, 26. He continues to improve daily in every respect, and the morbid secretions gradually diminish; the bowels regular: rep^{r} med^{a}—27, 30. The patient continued to acquire health, the fæcal evacuations continued to be regular, and the morbid ones to diminish in number and quantity, and on the 1st of July, the morbid secretions were no longer visible, and the bowels continued regular. In this case, none of the intestinal astringents or sorbentia were employed, but the bark; yet, as the general health improved, the morbid action of the intestine declined and ceased. The bark is most successful, when combined with sulphuric acid.

This variety should be distinguished from those cases of chronic dysentery occasionally met with, that are accompanied with hæmorrhoidal hæmorrhage, and in which I have known the fæcal evacuations to be regular.

Section V.—*Of the Variety C.*

In this variety, the chronic stage of dysentery is protracted by an ulceration or excoriation of the intestines; the diarrhœa and increased morbid secretions are maintained, and pus is observed in the evacuations.

The disease arising from an ulcerated state of some part of the intestinal canal, which it is proposed to treat of here, as a simple variety of chronic dysentery, was considered by the Greek and Roman physicians, and their followers, even later than the period in which Bontius wrote (anno 1629), as a distinct genus of disease, which they divided into two species, dysenteria et tenesmus, the former of which is termed by them the true dysentery, and arises from an ulceration of any of the upper intestines,* and the term tenesmus is strictly confined to an ulceration of the intestinum rectum.† Celsus has stated briefly, that in the disease called dysentery by the Greeks, the intestines are ulcerated, intus intestina exulcerantur. *Liber*: iv. *caput* xv. It will be seen by the notes, that Hippocrates and Galen are more explicit.—Galen has expressly stated, that a discharge of morbid secretions only shews a predisposition to dysentery, but that it should not be so called, until the ulcer of the intestine is produced.‡

* At ubi calefacto corpore, acria purgantur, et *intestinum raditur ac exuleeratur*, cruentaque per alvum demittuntur, hoc dysenteria appellatur, tum gravis, tum periculosus morbus. *Hippocratis Coi, liber* 3 *seet* iv.

Per quartam vero, quæ ex *uleere intestinorum oritur, præeipueque dysenteria vocatur*, &c.—*Galeni lib.* iii. *de Symptomatum Causis*. Dysenteriâ exquisitâ, intestinorum ulcus existit.—*Galeni lib*: vj. Deinceps medicamenta scribamus, quæ *vere dysenterieis* auxiliantur, *quos nulla alia infestat affeetio, præter ulcus intestinorum*, aut nudum aut cum putredine obortum, quam *dysenteriam appellant.—Galeni liber* ix.

The true dysentery, then, is an ulceration of the intestines with a perpetual purging, &c.—*Translation of Bontius, ehapter* iii, *page* 14.

† *Ejusdem generis cum prædictâ dysenteriâ, est tenesmos, vocatus, ob recti intestini ulcus eveniens —Galeni Liber* iii.

A tenesmus is an ulceration of the intestinum rectum, &c.—*Bontius, ehap*, v.

‡ Perseverans tamen permanet dispositio.—Veluti in dysenteria, cujus affectus, mordax humor existit causa utpote, qui ab initio, extergat

The antient physicians have furnished us with an accurate description of many of the characteristic symptoms of this variety of chronic dysentery; they have given a correct enumeration of most of the causes or circumstances which contribute to the ulceration of the gut; they have aided us in the diagnosis and prognosis; they have made some judicious observations on the method of cure; and have offered many remedies for our selection, some of which we may avail ourselves of, in modern practice, with advantage.

The occurrence of this variety of chronic dysentery is satisfactorily proved, for having sometimes terminated fatally, dissection has fully disclosed the different states of ulceration and excoriation of the colon and rectum, which have occasioned the fatal catastrophe.—*Chap.* iij.

There are previous circumstances in the acute stage of dysentery, which will induce us to anticipate its termination in this variety, and there are accompanying symptoms, which strongly denote its existence, and will be sufficiently characteristic, if the previous circumstances be combined to assist us in the diagnosis.

The evacuation of pus is the chief characteristic symptom. It is sometimes evacuated alone, but is generally mixed with the morbid secretions or fæces, and is sometimes so intimately blended with them, as not to be observeable; hence, in some cases, the discharge of pus is apparently suspended for one, two, or more days, and again becomes visible. The healthy pus is white, opake and

abradatque, ac dein temporis tractu ulceret intestinum.—*Quod si antea quam produxerit ulcus,* perfluere is humor desinat, affectus ipse *nondum dysenteria vocabitur.*—*Galeni Lib:* j, *de Locis Affectis.*

fluid, mixes readily with water, and renders it turbid. The appearance of unhealthy pus is so various as not to be briefly defined, but is like the unhealthy pus of external ulcers. It has been remarked, with much discrimination, by Galen, that the pus will be more or less blended with the fæces, as the ulceration shall happen to be seated higher or lower in the intestine; and if seated very high, that it admits of an accurate admixture, and of course will not be visible. Siquidem infimarum partium ulcera, nullas omnino ulcerum habent notas alvi excrementis admistas: earum verò partium, quæ paulò altius sunt sitæ, ulcera, mistas quidem cum stercore notas habent, sed id leviter duntaxat. Quemadmodum si multo sint sublimiores, vehementior erit mistura. Præcipuè vero in supremis intestinis, ulceris notæ stercori accuratè miscentur.—*Galeni de Locis Affectis, lib.* I^is^. Exceptions to these general remarks will be met with in practice; for in one case, treated by me, where the villous coat of the rectum sloughed off, pure pus was by no means evacuated in large quantities, or always disengaged from the intestinal discharges; a healthy pus is not perhaps sufficiently stimulating to excite evacuations.

The appearance of pus is not always looked for, unless this variety be suspected to exist, and hence sometimes escapes observation altogether.

The occasional discharge of pure blood, in the chronic stage, either in a fluid or grumous state, may, in general, be considered a characteristic symptom, as the ulcerated surface of the intestine may be excited to bleed, by the various irritants that pass over it, or by any irregular increase of the circulation. I have thus seen hæmorrhage, induced by intemperance, stimulating the heart and arteries

to increased action; by the passage of undigested food, (from an error in diet,) which has thrown the intestinal canal into great disorder, and by sympathy has deranged the circulating system; by constipation or retention of fæces; and if these causes of hæmorrhage be long continued, the quantity of blood increases, and the quality becomes changed, so that it will deviate from its pure state and natural color, to a slight, and thin dark sanies, and will finally resemble the washings of raw meat, and become fetid. Copious hæmorrhages sometimes occur.

This, like the variety A, is accompanied with frequent evacuations of loose fæces or of morbid secretions, and also of pus, or of these three in combination. The frequency of the evacuations seems to depend upon their copiousness; the quantity of food taken into the stomach; the quantity of morbid secretions; and the presence of any occasional irritants, as flatus, undigested food, or fermented liquors. The evacuations are sometimes mixed with the abraded villous coat, which is sometimes fetid;* and with the substance of tubercles. At every period the intestines are evacuated, a greater or less degree of pain is felt at some particular portions of the intestines, when the fæces or morbid secretions, &c. are passing through them, or when their peristaltic motions are strongly excited by any cause.

* *True dysentery* is an ulceration of the intestines, with a perpetual purging, at first mucous, then bloody, and, lastly, *purulent, intermixed with the very substance of the bowels*, with intolerable pain and griping of the belly.—*Bontius, Chapter* III.

(Dysenteriâ) paulatim et brevibus intervallis dejectionem fieri contingit, nonnunquam synceri sanguinis, nonnunquam grumosi cum quo interdum *puris* quoque *nonnihil intestinorum consimiles.—Signa Dysenteriæ, Galeni de Symptomatum Causis. Libri* ii. One might suppose Bontius had been quoting Galen.

These pains are generally felt in the direction of the transverse colon, across the abdomen, or near the boundaries of the hypogastric and umbilical regions, but *most frequently in the course of the sigmoid flexure of the colon*, or along the os sacrum and os coccygis in the course of the rectum. The pains recur during the evacuations for many weeks, and, by their longer duration, seem to be distinguished from the pain experienced on going to the water closet, when the intestines are affected with the increased morbid secretions without ulceration.

In this variety the tormina and tenesmus are sometimes severe, especially when there is a retention of fæces or undigested food is passed: the pain is not generally severe or complained of, when healthy pus is discharged.

The digestive powers are much impaired at first, and are often weak through the whole course of the complaint; yet they are generally sufficient to support the patient with a light and mild nutritive diet, under all the effects of the disease: they however, in some cases, become progressively weakened, whilst in others, as the ulceration heals, and the symptoms of local disease abate, they become proportionally strengthened.

The pulse is generally weak and soft, the face pale, and the body thin and emaciated, until the patient begin to recover.

An œdema of the extremities occurs occasionally in the other varieties of the chronic stage, but it most frequently accompanies this; the œdema increases in the day time, if the patient be not confined to bed, and subsides in the night; but it occasionally becomes constant.

Hectic fever is not so often induced in this variety as might be expected, and when it does occur, it is not always so strongly marked as the hectic of Europe; it is however equally dangerous and fatal.

It has been observed, that the intestines were disposed, in the variety A, to a particular retention of fæces:—that disposition is more prevalent in this variety, probably from the pain in transmitting them through the ulcerated parts being greater in this than in the other varieties, and from the more powerful operation of the law of the animal œconomy, by which efforts are made to resist those motions of muscles, which induce pain in their train, and hence these efforts conduce to the retention of fæces above the ulcerated part.

In whatever way it is produced, it generally occasions flatulence; loss of appetite; tormina; fullness and uneasiness of the abdomen; a discharge of blood, more particularly in this variety; an increase of morbid secretions, and a more frequent evacuation of them with tenesmus; fever; general irritation; peevishness; restlessness; want of sleep; and, if not relieved by proper mild purgatives, a colliquative diarrhœa, mixed with fetid secretions and blood; or lientery will supervene.

It will be proper to consider the circumstances which precede the ulceration of the intestine, and which may be termed, with propriety, its occasional causes.

It is chiefly consecutive to the inflammatory variety of acute dysentery, where the intestinal hæmorrhage has been considerable, the morbid secretions have been copious, and

the inflammatory symptoms violent: it has, however, succeeded to cases by no means severe in their commencement, but in such instances I have particularly remarked, that the patient had previously sustained several attacks of the disease, or had subsequently often swerved into exacerbating relapses.

When abrasions of the villous coat of the intestine are discharged in the acute stage of dysentery, and are distinctly seen in the evacuations, ulceration of the intestine must ensue, as a necessary consequence, to restore the lost parts; and, in this case, the existence of this variety is ascertained with certainty. Should any abrasions appear in the evacuations, during the chronic stage, the same consequences must follow, and this variety be induced by the former existing one being commuted to it; and if exfoliations of the villous coat appear during the chronic stage, in those cases, where abrasions have occurred in the acute stage, they will indicate an extension of the ulceration; or if tubercles appear, under the same circumstances, they will denote an increased number of ulcerations.

When tubercles or "cheese-like substances" *(Dr. J. Hunter, pages* 183 *and* 5*)* are passed, and are distinctly visible in the evacuations, an ulceration of the intestine must be a natural consequence. If the occurrence take place in the acute stage, it primarily establishes this variety, if in any other variety of the chronic stage, it will commute it. The progress of the tubercless to exfoliation or separation, is well described by Dr. J. Hunter, pages 182 et seq. after separation, they leave "small eating ulcers," which are sometimes "confluent."

Suppurated tubercles were known to be the cause of dysentery by Hippocrates and Galen. Dysenteriam interdum fieri suppuratis tuberculis, eorum que humore ad intestinum confluente.—*Galeni Comment: 3, in libr: de art, cap.* v.

When the villous coat of the rectum or any other intestine sloughs off, ulceration must be a natural consequence to restore the destroyed parts. I have known the sloughing of the villous coat to be induced both in the acute and chronic stages.

It has been already stated, that the variety A is sometimes commuted to this, which change (it is supposed) is induced by the morbid secretions producing the ulcerative process on the villous coat: but a *puriform discharge* from the mucous coat may sometimes deceive us in forming this diagnosis.

This cause of ulcerated intestine is repeatedly mentioned by Galen,* as well as morbid bile; and as excoriations and ulcerations are sometimes evidently produced by the stimulus of the morbid secretions, of the eyes, Schneiderian membrane, salivary glands, between the glans penis and præputium, and in the various situations of erythema papulatum of Dr. Willan, we may reasonably believe, that those of dysentery do sometimes excite the ulcerative process in the villous coat of the intestine. Experience has fully persuaded me, that such has been the consequence of morbid secretions in dysentery.

* See Galeni, liber vi. caput ii.

When the rectum has bren greatly inflamed, and the inflammation distinguished by the sense of vehement tension, *(tensionis vero vehementia, dysenteriam longe superat—Galeni, lib.* iii.) as if forcibly distended, I have known excoriation and ulceration to ensue.

I have frequently known a scorbutic diathesis to produce ulceration of the intestine; but scorbutic dysentery must be distinctly considered.

Ulceration, induced by any of the preceding causes, may be confined to a small space; or different ulcerations may exist in different portions of the canal; or the ulceration may be extensive, and embrace the whole circumference of the gut. If one tubercle only, or one piece of abraded villous coat be evacuated, it is probable, that one ulceration only is formed; if several be evacuated, then it is probable, that there are several ulcerations; and if a circular portion of villous coat be evacuated, then we may infer, that the whole circumference of the gut is ulcerated.

As the ulceration varies in extent, so also it varies in healthiness of action, and the pus must necessarily suffer corresponding changes in quality. When the ulcerative process is healthy, the pus is white, opake, and void of smell. When it is unhealthy, the pus assumes the various appearances observable in the unhealthy changes of external ulcers; the most common one I have observed, is a mixture of fluid blood and thin pus, forming a sanious discharge. The pus sometimes becomes fetid, and in this case, fetid shreds of villous coat may be expected, and should be looked for in the evacuations.

This may be distinguished from the other varieties, when the discharges of the tubercles or abrasions take place during the acute or chronic stages, and are followed by an appearance of pus in the evacuations.

When this variety is induced by the stimulus of morbid secretions only, the appearance of pus in the evacuations must be the diagnostic symptom. This appearance is not, always, of itself an unequivocal diagnostic of ulcerated intestine, for pus is sometimes discharged, in admixture with the intestinal contents, from an abscess of the liver emptying itself into the intestinal canal, or from an abscess of the omentum or mesentery bursting through the intestinal coats: yet there are some marks of difference, under these various circumstances, that will aid in forming the diagnosis.

When pus is discharged per anum from an hepatic abscess, there has been generally a previous, or there is an accompanying, pain in the right hypochondre; the pus is more considerable in quantity on its first appearance, and is less frequently evacuated afterwards, than is the case in this variety, and may be mixed with bile.

When pus is discharged into the canal from an abscess of the omentum or mesentery, it is generally larger in quantity at first than the pus from an ulcerated intestine, and is not observable so frequently afterwards. This discharge of pus is also preceded and accompanied by hectic fever, and is a very rare occurrence; for death generally ensues, before the abscess bursts into the canal.

Galen has endeavoured to form a diagnosis, by which the

portion of the intestine, which the ulcer occupies, may be distinguished, and it certainly will be attended with great practical advantages to ascertain, if the ulcers be situated within the reach of such curative applications, as could be directly conveyed to them in the form of enemas; but when it is certain that the ulceration is situated beyond their reach, a positive knowledge of the precise situation it occupies would not afford any assistance in the direction of the curative means, or much contribute to recovery. I would infer that the rectum is ulcerated, (when there has not been an exfoliation of its villous coat to denote it expressly;) by the pain felt in the course of the sacrum and os coccygis on having an evacuation, and by the pus in such cases being less blended with the intestinal discharges, and I would judge that the termination of the colon is ulcerated, if pain be felt in the direction of its sigmoid flexure, and the pus be not greatly blended.

I have already inserted the extract relative to the admixture of pus, to which I shall now add the passage relative to the admixture of blood, &c. both of which convey diagnostic marks of the portion of intestine ulcerated.—Cum itaque hujusmodi abrasiones solæ excernuntur, considerandum est, num pingue quippiam simul cum eis dejiciatur; ita enim ulcus in crassis intestinis consistere, existimandum est. Ubi vero cruorem quoque excerni videris, intueri oportet, utrum is reliquis excrementis adèo permistus sit, ut universus universis misceatur, an pars ejus aliqua reliquis supernatet. Etenim si admistus sit, in superioribus: si vero supernatet, in humilioribus intestinis ulcus esse portendit. Idem etiam et in abrasis excrementis videre est, verum non ita manifeste, ut in cruore. Similiter crustula, quodnam intestinum sit ulceratum declarant, tum ex es-

sentiæ proprietate, tum ex modo, quo vel misceri reliquis excrementis, vel uni eorum parti supernatare videntur. Nec vero mediocriter conducit ad curationem, nosse in quâ intestinorum parte consistat ulcus.—In tenesmus, Galen observes, per totum morbi spacium, iis quæ a supernis descendunt, minimè misceri videntur.—*Galeni de Locis Affectis, lib.* vj. *caput* ij.

Bontius has declared the "true dysentery or ulceration "of the intestines," to be "a horrible and destructive dis- "ease, which causes greater devastation in the East Indies "than any other malady whatever"—*Chap.* iij. and it must be confessed, that this variety is attended with considerable danger.

A favorable prognosis should be determined by the gradual diminution of the pains of the abdomen, and of the quantity of pus and morbid secretions evacuated; by the pus appearing laudable; by the daily improvement of the digestive powers; by the gradual restoration of the appetite, strength, and flesh; and, finally, by a return of a regular state of the bowels.

The case is unfavorable, when the pains increase; when the quantity of pus, of blood, or of morbid secretions is increased; when the appetite, digestion, strength, and flesh are gradually impaired and lost; when œdema is induced, and when the nights are restless and feverish.

The prognosis is unfavorable, when the pains are very severe, and accompanied with discharges of sanious blood mixed with copious morbid secretions, that daily increase debility; and if the sanious discharges and secretions become fetid, these indicate a fatal termination.

Unhealthy pus is an unfavorable symptom, and fetid, purulent discharges are generally fatal.

Evacuations of the villous coat or of tubercles, during the chronic stage, are unfavorable; if they be fetid, the case is very dangerous. Sudden and copious diarrhœa is dangerous; but if it continue without abatement, and every evacuation induce increasing debility, it generally exhausts the patient.—Lientery, copious hæmorrhages, and hectic fever, are generally fatal.

The duration of this variety is extremely uncertain: it must naturally suggest itself to every one, that the healing of an ulceration of the intestine is a process of Nature, carried on under such disadvantages, as will, from every probability, require a long period of time for its completion, even in the most favorable cases. This observation is confirmed by uniform experience, as I have known patients affected with it for twelve or eighteen months in the country, and be finally sent to Europe, while others of equal duration have been cured in the country, when assisted by changes of climate.

In some vigorous and healthy constitutions, however, where, probably, the ulceration has not been extensive, Nature has exerted herself so powerfully, as to overcome every obstacle, and effect a cure in two or three months.

It is, indeed, observed by Galen, that ulcerations of the intestines more readily admit of cure, than ulcerations of the coats of other internal organs; because medicines injected in the form of enemata, become immediately applied to the affected parts; an advantage, of which we can-

not easily avail ourselves in ulcerations of other internal organs. But it must be evident, that this rule can only apply with correctness, when the intestinal ulcer is seated within their reach.

If it be discovered that intestinal ulceration has taken place in the acute stage; the antiphlogistic regimen must be persisted in, until there be good reason to believe, that inflammation has wholly subsided; and during the after-treatment, the patient should avoid all the causes (*sect.* 3) that inordinately increase the action of the heart and arteries.

The means of cure will be somewhat varied, to be adapted to the seat of disease:—Nam si in superioribus intestinis sit, ab epotis medicamentis, præsidium petendum est; sin verò humilioribus hæreat, clysterem subjicere magis convenit.—*Galeni de Loc. Aff. lib.* vj. *caput* ij.

In cases of ulceration of the lower intestine, the healing of it should be promoted by enemas. There are various remedies adapted to the healing of ulcers in general, but the most useful, in tropical countries, are those which are gently stimulating or astringent, more especially, if the ulcerative action be languid. In the tropics, the constitutional state, which most generally accompanies the torpid or languid action of ulcers, is a state of debility, and as this is the most common constitutional state observed in this variety of dysentery, it is inferred, (and experience confirms the inference,) that the enemas which contain some medicine which is gently stimulant or astringent on an ulcerated surface, are the best adapted to the healing of the intestinal ulceration, as long as constitutional debility continues. The

astringents should not be of the class which produce costiveness, and the stimulants applied should be such as will not irritate the healthy portion of gut, so as to occasion their speedy evacuation, or they should be conveyed into the intestine in such a demulcent, mucilaginous, or sheathing medium, as will defend the healthy portion of intestine from their stimulus. The various class of sorbentia, 3sp. (*note, sect.* iij.) may be injected in starch, congee, gruel, or barley water, or mucilage. A weak solution of sulphas cupri is gently stimulant and restringent. A solution of sulphas zinci may be used. The decoctions of astringent barks, and the enema with liquor plumbi acetatis (when it is not constipating) have been found very advantageous.

The enema should not be more in quantity than absolutely necessary, as its bulk might excite the expulsive action too powerfully to be counteracted, when it is our desire that it should be retained. If there be reason to believe that the rectum is the part ulcerated, four ounces of fluid will be sufficient, but if the sigmoid flexure of the colon is the part believed to be ulcerated, then the quantity must be increased to eight or even sixteen ounces, and more force used in throwing it forward.

During the use of the enemas, the general health should be promoted, every excess, and all diet and drink, which can irritate the ulcerated gut too much in their passage, should be avoided, and constipation should be guarded against; in fact, the general treatment of this variety under other local circumstances, should be adopted.

In the cases, where the ulceration is seated in the higher intestines, and these are the most dangerous and most un-

certain of cure, it must be evident, that no local curative application can be conveniently or with certainty, applied to the immediate seat of disease; at least, not without being combined with the ingesta, and secretions of the chylopoetic viscera and intestinal canal.

The ancients have, however, employed and recommended powerful astringents to cure the ulcer, and their "optimum medicamen" consisted of one part of white pepper, two of galls, and four of burnt shells.* Although this remedy is said to be "wonderfully beneficial," yet I confess I have never ventured to employ it, and but rarely any powerful constipating astringents, because I apprehended more evil from constipation than good, from their effects on the ulcer.

Dr. Darwin, on the subject of *Phthisis Pulmonalis, class* ii. 1, 6, 7, has suggested, that powders of the class sorbentia, might be useful when applied to internal ulcers, and has given a plate of a machine to assist in inhaling them into the lungs, and it is probably with this intention, that the calamina, *(Sir G. Blane on Dysentery,)* creta ppta, and the various sorbentia mentioned in the treatment of the variety A, have been prescribed in chronic dysentery. As their operation is concealed from our view, it is impossible to decide, what is their degree of local efficacy, or if they

* Dysenteriæ optimum remedium. Cochleæ si totæ cum testis urantur, admista galla, omphacitide, simulque pipere albo, *mirè prosunt dysentericis,* in quibus ulcera computrescere non cæperunt. Convenit autem ut piperis sit pars una, gallæ vero duæ, quatuor cochlearum. Hæc ubi ad unguem lævigaveris, cibis inspergito, bibendumq. aut ex aqua, aut ex vino albo et austero, præbeto:—Cæterùm absquæ gallæ mistione, cinis cochlearum admodum resiccantis est facultatis, obtinens item nonnihil ex ustione callidum.—*Galeni liber* xj. *de sim. med. facult. &c.*

specifically conduce to the healing of the ulcer; but experience has ascertained, that the mild sorbentia may be prescribed generally without an apprehension of doing the smallest injury; that they are advantageously used, where the diarrhœa is at all too copious; and that gradual restoration to health has followed their use, in combination with bitters, or decoctum cinchonæ and aromatics, where they have assisted in the indication of strengthening digestion, and of preventing acidities and flatulence of the stomach, independent of their local effects on the ulcer.

The mild absorbents may be also employed in admixture with the food and drink, as mentioned in the variety A. Creta præparata was the absorbent most generally used in my practice, and I was probably influenced in the preference I gave to it, by the curative character it possesses, as an application to external ulcers.

As modern practitioners have prescribed intestinal astringents in chronic dysentery generally, without reference to any particular variety, I cannot ascertain, with precision, if their experience discloses the superior efficacy of any of them.

I gave the saccharum saturni (plumbi superacetas) to two patients affected with this variety; in the first it did manifest injury by producing constipation and its consequences; in the second, it had not any evident effect.

I have observed, that there is a greater disposition to a retention of fæces in this variety, than in A, which is a reason, why such powerful astringents as the strong decoctum simaroubæ, Dr. Moseley's mixture, and the plumbi

superacetas should not be employed, but with the greatest caution, and with an argus-like vigilance to obviate the severe effects of their retention.

If it be not in our power to apply direct curative applications to intestinal ulcers, it is, at all events, our positive duty to guard, by every possible means, against the introduction of any thing into the intestinal canal, which would prove obstructive of the healing process.

It is probable, in ordinary circumstances of the constitution, *i. e.* where it is not influenced by scrophula or syphilis, many ulcerations of the cuticular lining of internal viscera, would gradually heal, if nothing obstructive of the healing process were applied to them. We observe common excoriations and ulcerations of the mouth and throat heal with rapidity; and dissection has even disclosed the cicatrices of variolous pustules on the villous coat of the intestine, whose existence had not been suspected during life, while ulcers of the lungs will not heal from their constant action, and ulcers of the intestines are impeded in the healing process by the fæces formed from the ordinary diet of mankind, which is a substance most unfavorable to the healing action of an ulcer; hence it is inferred, that the less volatile and stimulating, and the more inoffensive the fæces, the more rapid may be the recovery. All strong animal food, or food which soon putrifies, should be excluded from the patients's diet; nothing strong or difficult of digestion is admissible. Congee, arrow-root, gruel, sago well boiled, panada, milk, with any of these where it is found to agree, soups, divested of fat, jellies, and eggs, should be the principal articles of diet. Tea may be used. *The quantity of food or drink should not at any time be copious, as it might injure the diseased intestine by over*

distention; and, for the same reason, any of the articles of diet known to produce flatulence should be avoided. The diet, in short, should be bland, mild, and innocent. Every solid food should be well masticated, and reduced to a soft and minute pulp before it is swallowed.

In cases of wounds of the intestines, it is a rule of surgery to confine the patient's diet to very small quantities of bland demulcent fluids, during the healing process, while all solid food is interdicted;* and the nearer we can, with propriety, approximate this practice in this variety of dysentery, the greater will be the chance of success; but it must be recollected, that the injuries exist under very different conditions and circumstances of the constitution. In the case of wound, the condition of the patient's general health is good, and severe abstinence with the antiphlogistic regimen will induce a state favorable to the healing of the intestine, while in the case of dysenteric ulcer, the general health has been greatly deranged, and great debility induced by a previous state of severe or inflammatory dysentery, and the remedies employed to remove it, and the weak constitutional state becomes rather unfavorable to the healing process, or to further abstinence, and requires a bland and more nutritious regimen.

The evil and mortal consequences resulting from intemperance, imprudent indulgences of the appetite, and of the social disposition, have been depicted in treating of the variety A: these errors are more pernicious in this, and the necessity of a most regular and temperate life, and of a strict dietetic regimen is consequently greater. Their treatment is the same.

* See Mr, Travers on Injuries of the Intestines.

Obstinate or ill-fated patients are sometimes met with, who cannot be persuaded, or induced by sufferings, to conform to a proper diet. I have sometimes eluded the bad effects of their folly and obstinacy, by keeping up a slight mercurial soreness of mouth, which has compelled them to relinquish solid food, and to live on broths and farinaceous preparations of diet, so long as to allow of a favorable state of quiescence to the bowels, and to admit of the establishment of a healthy action of the ulcer. We have no indirect means of adroitly warding off the fate of the determined inebriate, and can only succeed by resolute compulsion.

It is not intended to exclude the use of wine entirely, but the quantity must be regulated by rules of temperance, and the patient's former habits of life, and present experience of its effects.

I believe it may be deduced from general experience, as well as from my own, that the constitutional state most favorable to the healing of ulcers, is one neither characterized by too much energy or much weakness. It has been already observed, that the general constitutional state in this variety of chronic dysentery, is one of debility, and it may be now remarked, that the local action of ulcers accompanying this constitutional state is generally either weak, indolent, or irritable; *(See Sir E. Home on ulcers;)* from whence it is concluded, that medicines which will restore the digestive functions, and invigorate the constitution, without deranging the circulation, will indirectly conduce to the healing of the ulcerations: this conclusion is supported by experience, for I have observed, that the pus and discharges diminish in quantity, and improve in healthiness, and other local effects, (as pain,) decrease, in the ratio, that the general health becomes re-established.

The decoctum cinchonæ, and the various bitters, combined with the aromatic and astringent tinctures, carminatives, absorbents, or the mineral acids, can be administered with advantage, whenever the diarrhœa is not too copious. Should there be a disposition to a retention of fæces, five grains of pulvis rhei, taken about an hour before dinner every day, will be found very beneficial, and at one period or other of cases of long duration, this disposition is induced, and the remedy becomes useful. Many of these remedies are advantageously applied to external, indolent, or irritable ulcers, and, in as much as they are applied to the ulcerated intestine, they may, perhaps, prove serviceable; at all events, it is a satisfaction to believe, they will not do any local injury.

When it is manifest, that the digestive functions and general health gradually improve, and the pus becomes white and opake, we may be assured of a happy result, and the existing treatment (whatever it be) should be persevered in, as long as it proves beneficial.

The observations made on the treatment of diarrhœa in the other varieties are applicable in this. When the evacuations are too frequent, copious, or debilitating, they should be repressed by the cretaceous mixture with opium, recommended so often before.

The diarrhœa generally requires medical remedies and attention in the early parts of the chronic stage, as the evacuations are then commonly too frequent, copious, or debilitating; but, in the chronic stages of long duration, there is more frequently a disposition to retention of fæces, and the evacuations are more scanty.

Whenever retention of fæces and its consequences (*page* 152) occur, the oleum ricini should be prescribed and considered the most eligible purgative, from the mildness of its operation and its sheathing nature. The strong purgatives do injury, by subjecting the ulcer to the irritating application of increased secretions of bile and intestinal mucus.

If the recovery be much protracted, diseased liver may be suspected, and an alterative course of mercury should be resorted to; for if it be impeded by "obstruction," "chronic hepatitis," or by any derangement of the liver which is characterized by an unnatural color of the fæces, mercury will best remove this obstacle, by continuing its use, in moderate doses, until the hepatic and intestinal secretions are restored to a healthy state, and at all events, it may excite the same beneficial action upon the intestinal ulceration, as it does upon other ulcerated surfaces, by altering its languid action, and giving it a disposition to cicatrize: this effect is sometimes apparently induced, for recoveries have soon succeeded to slight salivation. In very protracted cases, alterative courses of mercury may be repeated. In the same cases, perpetual blisters to the abdomen are sometimes productive of advantage.

When an error of diet has been committed, the offending food should be rejected by vomiting, if the patient can effect it by the assistance of a gentle emetic, or of warm water, or an infusion of chamomile flowers; by which means, the injurious consequences of undigested food fermenting in the stomach and passing through the intestinal canal, will be prevented. If the offending food have already passed into the intestines, its evacuation should be promoted by a moderate dose of rhubarb or oleum ricini, with

warm diluents; the pains it excites should be soothed by fomentations, and the irritation raised should be subsequently calmed by opium, carminatives, aromatics, and demulcents, as in the variety A.

Tormina and tenesmus, occasional increased secretions of bile, and other symptoms, which require attention, should be palliated and removed by the same remedies, as have been recommended for that purpose in the acute stage of dysentery.

When the fatal hectic fever occurs in this variety, the same general plan should be continued, from the faint hope of a favorable change: opium becomes more necessary, and is exhibited more frequently, to alleviate painful sufferings and a wasting diarrhœa, and is, in advanced stages, the only comfort.

Œdema of any part of the body is a symptom of weakness, that will recede in favorable cases, as the recovery advances, and, with the simple aid of a bandage neatly applied, œdema of the extremities may be removed. I know not of any local treatment that will remove œdema of the face, and it is a most unfavorable symptom.

It might be expected, that I should enter more fully into a particular consideration of a mixed and obstinate form of hepatic and intestinal disease,—a compound of symptomatic chronic diarrhœa and dysentery, connected with the "hepatic obstruction," of Dr. Paisley, or the chronic hepatitis of some other authors, than I have done at *page*

23; *Chap.* iv. *Sect.* 1; *pages* 173-4, 202, &c. &c. but it was my intention, when writing this Treatise, to publish my manuscript on hepatic diseases, which it would necessarily involve, *(see page* 23,) if this Essay were as favorably received by the public as my first on Hemeralopia. I shall therefore content myself with observing on the practice I have recommended in the preceding pages; that this combined form of hepatic and intestinal disease is generally distinguished by a deficient, altered, or impaired biliary secretion, or by its total suspension, which accompany the usual symptoms of any of the varieties of chronic dysentery; that the use of mercurials should be instituted and persisted in, until the secretions be restored and become healthy, and the bowels regular, and that they should be combined with opium, if the diarrhœa be too copious or exhausting, otherwise the decoct. cinch. with inf. vel pulv. rhei are more eligibly and beneficially employed as a part of the modus medendi.

Section VI.—*Of the Variety D.*

In this Variety, the Chronic Stage is protracted by a Morbid Enlargement of the Mesenteric Glands.

This variety occurs but rarely, or if it prevail oftener than is suspected, the failure of discovery must be attributed to a defective diagnosis, and the real difficulty of detection.

When the parietes of the abdomen are rendered thin by the absorption of the cellular fat, and the emaciation induced by previous disease, the existence of an enlarged

state of the mesenteric glands may be detected, by pressing the hand on the abdomen, and much facility is afforded in explaining the cause of protracted disease: but when the parietes are thick, and the patient corpulent, these circumstances offer insuperable obstacles to detection, by touch, and consequently create great difficulties to its discovery at all.

Dissection has disclosed an enlarged state of the mesenteric glands, in cases of long duration, and in some of those cases, where an abscess or an ulcerated or mortified state of the intestine has been exposed to view.

In India, the lymphatic glands of the body are, in a very prevalent degree, susceptible of irritative inflammation, from the stimulus of pus absorbed from an unopened abscess, or the surface of any sore or ulcer, and inflammation of the lymphatics and glands, in the course of the lymphatics of the extremities, is a very common attendant on an ulcer or abscess of the hands or feet. These glands, when inflamed, often resist general and topical bleeding, and the operation of the most powerful remedies for promoting resolution, and consequently suppurate.

From the analogy between the lymphatic and lacteal glands, we may be permitted to infer, that the mesenteric glands are also, (if not equally,) susceptible, in the tropics, of inflammatory action, from the stimulus of pus or morbid secretions absorbed from an ulcerated or morbidly secreting intestine, and this event may be occasionally suspected in cases of the A and C varieties of chronic dysentery, but more particularly so, if they are of long duration. The

inflammation of the mesenteric glands may continue in the chronic state, even after the exciting cause is removed, *i. e.* after the ulcerated intestine has healed, or the morbid secretion has ceased, and thus become the distinct cause of this variety: the inflammation may even assume a more active state after this period, as is observed to be the case in the lymphatic glands of the extremities, after the healing of the ulcer, whose absorbed pus first excited the inflammation.

Unless the mesenteric glands are discovered by the touch to be enlarged, the diagnosis is very imperfect; the presence of chyle in the stools might assist, as well as the existence of a state of fever and gradual emaciation: the appearance of chyle is uncertain, from its being mixed with the stools, while emaciation is also induced in the other varieties.—The precedence of the variety C, belongs to the diagnosis.

Although the inflammation of the lymphatic glands in the extremities be active, and be strongly disposed to terminate in suppuration, yet there are causes which counteract this tendency in the mesenteric glands. The inflammation of these is generally indolent or chronic, because it is induced at a period when the strength and vigor are greatly reduced by a protracted disease, which is debilitating in all its effects; when the circulation is languid; the quantity of blood comparatively diminished; and the body is considerably emaciated. The impaired digestion, and the inflamed state of the glands themselves are unfavorable to the establishment or progress of active inflammation and the suppurative process, for they prevent the introduction of the natural quantity of chyle necessary to supply the

daily waste, and hence still further diminish the force of the circulation, the fullness of the arteries, and the richness of the blood. None of these circumstances oppose the progressive inflammation of the lymphatic glands.

The indications of cure in the variety C, will be generally adapted to this, as long as the ulcerated state of the intestine continues. An alterative course of mercury will be resorted to with less hesitation, and blisters to the abdomen will be deemed more useful and necessary.

Should the enlarged condition of the mesenteric glands obstinately remain, after every evidence of ulcerated intestine is removed; the indications will be to do away with the disposition to local inflammatory action; to promote absorption of the swelled parts; to improve the general health; and to correct all disorders of the bowels, which generally continue to be affected with diarrhœa, although the stools are not copious.

The two first indications may be fulfilled by altering the action of the inflamed vessels, and promoting other secretions: alterative doses of mercury are hence found very useful, and perhaps always do great good, for the excitement of gentle ptyalism has been greatly beneficial, when even it has not effected a permanent cure. Local bloodletting and blisters are sometimes necessary. Gentle frictions on the abdomen have been found advantageous, and in this case should be persevered in.

Mild stimulants and rubefacients, rubbed on the abdomen, and the unguentum hydrargyri camphoratum, have sometimes proved useful.

The general health should be promoted by mild tonics and bitters, gentle and moderate exercise, temperance in eating and drinking, food of easy digestion, agreeable society, and tranquillity of mind.—When the digestive organs are so weak as to require attention; absorbents and aromatics may be combined with advantage, with the bitters and tonics.

The disordered condition of the intestinal canal, may be mitigated by a light diet, and a proper regimen; mistura cretæ cum opio should be prescribed, when the intestinal diarrhœa is so copious as to debilitate, and mild aperients should be employed, when the bowels are griped, or costive: although this part of the treatment requires some address, so much has been already observed in the medical treatment of this symptom in the other varieties, that nothing remains to be added on the subject.

Scrofula is a very rare disease of seamen, and I have not seen one case, where the enlargement of the mesenteric glands could be attributed to the scrofulous diathesis.

This variety sometimes terminates fatally, and when combined with C, is at all times very dangerous, tedious, protracted, and replete with sufferings. It has not terminated fatally in my own practice, which has been very limited in this variety, or this account of it would have been less imperfect. Should an active practice be always adopted early in acute dysentery, it is confidently presumed, that this variety will occur still more rarely.

Section VII.—*Of the variety E.*

In this variety, the chronic stage is maintained by an abscess formed in one of the abdominal viscera, or of their membranes, and is generaly accompanied with hectic fever.

This variety is always consecutive to inflammatory dysentery, or dysentery combined with hepatitis.—Abscesses are formed in the great and little omentum, the mesentery, liver, &c. Dissection exposes them, most commonly, in the liver, and that portion of the great epiploon, which invests the transvere colon, and they are found in other parts mentioned in the section on dissections.

The symptoms of inflammatory dysentery, and of its suppurative termination, have been detailed at much length; and it has been observed, after suppuration is induced, the disease but too frequently runs its fatal career in two or three days :—it, however, does sometimes become protracted to three or four weeks, and forms a chronic disease; but its insidious delay, in producing death, only creates hopes to be disappointed, and expectations that prove fallacious. In my practice, the formation of abscess has always been followed by death.

The liver is said, by physiologists, to be less sensible, and to indicate acute inflammation less, than other viscera; and it has been remarked at *page* 23, that the pain in the hypochondriac region may be absorbed in the severe and exquisite pains of the bowels in dysentery, and thus escape

the attention of the patient and practitioner, while in a few cases, the symptoms of hepatitis are well marked. Hepatic suppuration sometimes takes place when it is not suspected, and is generally followed by death: yet in cases of abscess of the liver, which breaks externally, or opens into the intestine, a recovery has ben occasionally accomplished.—*See Lind & others.*

The symptoms, which indicated the existence of internal abscess in the chronic form of dysentery, were continued prostration of strength, which peculiarly rendered the patient averse to exertion; loss of appetite; irregular irritability of stomach; fever; strong resistence to the slightest action of mercury. The stomach is sometimes irritable and rejects every thing for hours and days; at other times it retains food for some uncertain period; nausea and vertigo in an erect posture are common; the evacuations continue frequent, chiefly consist of the dysenteric discharges, and are accompanied with tenesmus and tormina; pain is felt in pressing the abdomen or hydochondre; a sense of weight is sometimes felt in a particular part of the abdomen; the fever continues but is irregular; there is sometimes a regular cold fit every day, and an evening exacerbation of fever; the exacerbation sometimes took place early in the morning; in other cases, one cold fit or rigors were only felt when the abscess was formed, and the fever* was mild and continued; the pulse is quick and weak; the patient is hot, thirsty, and restless; *copious mercurial frictions* (as two drachms of the ointment twice a day,) *with large doses of calomel,* (as five grains every four or

* In longis dysenteris, appetitus prostratus, malum; et cum febre pejus.—*Hippocratis Aphorismi, sect.* vj. 3.

six hours) *always failed to produce salivation;* and if they displayed any effect, it was a mere creation of soreness of the gums, or a faint mercurial smell of the breath. The patient sometimes perspires excessively. The longer the disease is protracted, the more weak and emaciated the patient becomes, until colliquative diarrhœa, cold sweats, cold extremities, hickup, delirium, and death, close the awful fate of the patient.

Death is so generally the result of this variety, that it would be absurd to offer a modus medendi, or to allow any, but the faintest, hope of recovery to be indulged, from the interposition of unusual efforts of nature, and not from the interference of the medical art.

It is possible for a recovery to follow the bursting of an abscess through the intestinal coats; but I have not seen such a case.

We are taught not to despair, and, at least, to endeavour to strew the path with flowers that leads to the grave; palliatives should be resorted to, of which opium is the principal, and in cases of great restlessness and severe suffering, after suppuration, it should be administered in large doses, so as to diminish or suspend the acuteness of those painful feelings.

I have usually continued the calomel and mercurial frictions copiously, because they fail to excite any injurious or even evident effect, if suppuration have been induced, and thus become a test of the existence of abscess; and if suppuration have not been formed, the continuance of the mercurial preparations, until ptyalism be induced, constitutes an essential means of cure, which has been already spoken of.

Fomentations to the abdomen, and anodyne enemas, are remedies adapted to the relief of tormina, and very scanty frequent stools, attended with tenesmus.—The warm bath is particularly beneficial in relieving the pain and irritation, arising from pus confined in an hepatic or visceral abscess, and the pains experienced in the abdomen or intestines, at the period of its breaking. The patient who has once used it, in general, eagerly demands its repetition.

Cool air is particularly grateful to the patient, and soothing.

It affords some consolation to observe, that this fatal variety of chronic dysentery will be rendered of comparatively rare occurrence, if venesection and the vigorous antiphlogistic practice, recommended in the treatment of the inflammatory and severe varieties of acute dysentery, shall be extensively adopted ; for in the year preceding its adoption, I lost seven patients from the suppurative termination, and in the three years succeeding it, Monsieur Hourie and Richard Bagnal only died from this cause under my care, and the former case was hopeles, when he was received from Ganjam, and placed under my charge.

CASES

OF THE INFLAMMATORY VARIETY OF ACUTE DYSENTERY.

CASE I.

Ganjam, December 28th, 1808.—John Burgess, ætatis 25, complains of being purged very often, and states the stools to be a mixture of mucus and blood: ℞. Hydr: submur: gr vj, ft pilulæ ij st: sumendæ, cum sulph: magnesiæ ʒiss. The cathartic procured two natural stools in the afternoon: capt. haust: anodin: vespere, et bibat decoct: hord: callid: post cubitum diaphoresin promovere. —Dec. 29th. He has had thirteen evacuations last night, which, on inspection, appear to be dysenteric, and were accompanied with much tenesmus and tormina; he complains of *great and constant pain across the hypogastrium, which is increased during the evacuations; he has fever; the skin is hot, and tongue dry.* He was bled to twenty ounces before the pain was relieved.—Rep^{r} haust: cathart: salin: cum hydrargyri submur: gr iij.—℞. Hydrar: submur: g^{r} iij, pulveris ipecacuanhæ g^{r} ij, olei menthæ piper: ℥j, saponis q: s: ut fiat pilula 6^{is} horis sumenda.—Horâ unâ, P.M., rep^{r} sulph: magnesiæ ʒss, omni horâ donec operav^{t}.—Horâ 8^{a}, P.M. The cathartic operated after six doses; he now perspires, and feels easy: the bowels continue to be freely purged: rep^{r} pil: ex hydr: submur: 6^{is} horis, and to take a grain of opium with the pill, if the purging prove too copious.—31st. He is free from pain, and has only had two stools during the night: omittantur medicamenta, et cap^{t} pulv: ipecacuanhæ comp: ℈ss, hora somni.—January 1st, 1809. He has had two stools last night, and five this morning, all of which are fæcal, and were passed without pain: capiat pilulam alterativam bis die.—2d. The bowels are easy, and only lax; he is

better: omit: med^{a} mane; he had four stools during the day, which induced us to give him pulv: ipecac: co: ʒss horâ somni.—3d. The bowels lax and easy, and he is recovering generally and rapidly: rep^{r} pulveris doveri gr. v. h: s.—4th. The bowels were purged four times this morning: rep: pulv: ʒss. h: s: et cap^{t} pil: alterat: mane. 5th. He is recovering: rep: med^{a}.—6th. He had three stools this morning, and none in the night: cap^{t} pulv: ipecac: co: ʒss. bis die. —7th. He has had only two stools since yesterday: rep^{r} medicamenta.—8th, 9th. The bowels are less purged, and he acquires strength: rep^{r} med^{a}.—10th, 11th. The bowels are lax, but he feels his general health perfectly restored: rep^{r} med^{a}. The medicine was continued unto the 16th, when he returned to duty.

I did not see this patient until the second day of his illness. The bleeding, purging, and perspiration were the chief agents in the cure, for the symptoms were so much relieved by them, as to render it unnecessary to excite ptyalism. The diarrhœa that ensued, was, for a few days, only checked, and not suppressed, as it might have been by more powerful remedies: because a loose texture of the fæces seems necessary, during an indefinite time, to their ready and easy transmission through the diseased portion of the intestine; and a compact state of the fæces, or constipation generally produces tormina, and occasions a relapse.

In all the cases of this variety, the patient should subsist on warm barley water, congee, or gruels, until the inflammatory symptoms have subsided.

CASE II.

On the Coast of Malabar, March 30th, 1809.—Emmanuel Joseph, æt: 26, complains of *constant pain in the umbilical region;* he has had fifteen evacuations of blood and mucus last night, which were attended with tenesmus and tormina, *the pulse is full and frequent; he has slight fever;* the tongue is white: mittatur sanguis ad remissionem doloris, and sixteen ounces were taken.—℞. Hydr: submur: g^{r} vj st: sumenda cum magnesiæ sulph: ʒiss. et

P.M. capiat ʒss omni horâ donec operav^{t}. Horâ 5^{a} P.M. he has had six stools, some of which were mixed with fæces; he has felt easy since two o'clock; he perspires a little, but the skin feels hot; the pulse is full, and beats 92 strokes in a minute; he has taken salts every hour since one o'clock, and they are to be continued until they operate copiously, with the addition of antimon: tartar: gr. ¼ to each dose. At 10, P.M. the cathartic had operated freely, the pulse is reduced to 86, and he perspires freely: ℞. Nitr: potassæ ʒj, ant: tartar: gr. ¼ aquæ ℥j. ft haustus 6ta horis sum: et cont. dec. hord. Low diet.—31st. The patient is better, the constant pain is removed; but he feels tormina and tenesmus during his evacuations; the fever has left him; the skin perspires profusely; the pulse beats 67 times in a minute; he has had six stools in the night, which consist of mucus and serum: ℞. Hydrarg: submur: et pulv: ipecacuanhæ āā gr. ij, ol: menthæ pip: ♏j, sap: q: s: ut fiat pilula 6ta horis sum.—Cont. decoct: hord: callid.—April 1st. He had only two stools last night, which were fæcal and accompanied with tormina; he also passed two during the day; the pulse is natural; he continues to perspire: rep. pilula 8va horis, et decoctum.—2d. He felt some pain last night about the umbilicus, but is easy this morning; he has had but one stool since yesterday, which is thin and scanty: rep. pilula bis die. Sago for dinner.—3d. The bowels are regular, and he is free from complaint.—4th. The same as yesterday; omit. medicamenta. Soup and vegetables for dinner.—5th, 6th. The bowels are open and easy; he recovers his general health fast, and is allowed a light nutritive diet.—On the 11th, he returned to duty.

The preceding and some succeeding cases were, like other inflammations, cured by the antiphlogistic regimen, and demonstrate, that the exclusive privilege of curing dysentery, should not be conceded or confided to diaphoretics; or purgatives and anodynes alternated; or to mercurial sialogogues.

CASE III.

Bombay, May 17th, 1809.—James Pyeman, æt: 24, complains of constant pain across the epigastrium, and has very frequent

mucous stools, which are accompanied with tenesmus and tormina; he has no fever; and he perspires freely: ℞. Hydrargyri submur: gr. iij st: sum: cum magnesiæ sulph: ʒiss, et post meridiem, rep. ʒss. omni horâ, donec operaverit. Low diet.—May 18th. Two copious fæcal stools were at length obtained during the night, and he has had many evacuations of serum and mucus; he feels a little pain in the hypogastrium, but it is not tender on being pressed; he has slight pyrexia, with its ordinary attendant symptoms: capiat pilulam ex hydr: submur: gr. iij, pulv: ipecacuanhæ gr. ij, 3ⁱⁱˢ vel 4ᵗᵘ horis, et bibat sæpe decoct: hord: callidum.—19th. Horâ 8ᵛᵃ A.M. He has had frequent stools in the night, which are a mixture of mucus and blood, and very scanty; tormina and tenesmus are severe, but he has no constant pain: rep. pilula 3ⁱⁱˢ horis. He continued free from pain from eight to eleven A.M., after which *a constant pain in the hypogastrium was induced and gradually increased, and at length felt like a tight connected weight or lump*, when he sat up; *fever has supervened with full, frequent pulse;* the stools are scanty and frequent; mittatur sanguis ad remissionem doloris.—Injiciatur enema catharticum, et capiat haustum cathart: salinum, which was vomited up. ℞. Pulv: jalapæ ℈ss, ft pilulæ ij omni horâ sumendæ. Rep. pilulæ hydrar: submur: 3ⁱⁱˢ horis, et vespere, applr. empl: lyttæ hypogastrio raso.—20th. He has had three or four thin fæcal stools, besides the dysenteric ones; the fever has left him; the pain has much abated; he perspires, and feels better: rep. pilulæ, et P.M. cap. h: cathart.—21st. The cathartic operated in the night; he feels easier, and is better: rep. pilula 6ⁱⁿ horis.

As the accommodations for the sick were very bad and damp at the seaman's ravelin in Bombay Fort, he was sent to the naval hospital, under the able care of Mr. Christie, where he recovered, without any return of the inflammatory symptoms, but not until he was salivated.

CASE IV.

Bombay Ravelin, May 19th, 1809.—Joseph Hare, æt: 29, seaman. This man has been affected with worms and chronic he-

patitis, since his arrival in India. He now complains of frequent stools, which, on inspection, appear to consist of mucus and bile, and were accompanied with tenesmus and tormina, but he feels pain only during his evacuations: capiat hydrarg: submuriat: gr. vj cum sulph: magnesiæ ℥iss, statim, et, postea, cap. pilulam ex hydrargyri submur: gr. iij, pulv: ipecacuanhæ, gr. ij, &c. 6^{is} horis.—May 20th. He states he has had very frequent mucous stools during the night, which were accompanied with severe tenesmus and tormina; the pulse is very frequent; the tongue is dry and bilious: repr. pil: 6^{is} horis, et injiciatur enema anod: which relieved tenesmus and tormina, and procured some hours sleep. Hora 3^{a} P.M. The correctness of his statement relative to the nature of his stools was doubted, as he had not examined them: but they appear, on inspection, to consist of blood, mucus, and serum. Rep. haust: cathart: salin: et pilul. Low diet.—21st. The stools of blood, serum, and mucus continue frequent, and are attended by tenesmus and tormina; but he has no constant pain; he perspires freely and has no fever: rep: h: cath: sal: et pil:, which he vomited up. Dein ℞. P. jalapæ ℥ss, syrupi q: s: ut fiant pilulæ vj statim sum: cont. pil: ex hydr: submur: et pulv: ipecacuanhæ. Rep. pilulæ jalapæ horâ 2^{a} P.M., et horâ 6^{a} P.M. capiat pulv: jalapæ ℥j, as the patient had not passed a fæcal stool: cont. pil: calomel.—22d. He has had frequent scanty griping stools of mucus, and serum, but no fæcal ones; he perspires; he feels pain across the epigastre; the pulse is frequent; the skin is rather hot, and tongue white: capiat magnesiæ sulph: ℥ss omni horâ donec operav. Cont. pil: ex hydr: submur: gr. iij, &c. 3^{iis} horis.—23. He has not had a single fæcal evacuation from the persevering use of the cathartics and calomel, but the stools are frequent, and consist of blood, serum, and coagulated mucus; he has been very restless; *the skin feels hot, though he perspires;* he complains of having had, all night, *a constant pain in the right hypochondre and umbilical region;* mittatur sanguis:—Twenty ounces were drawn, before he was relieved from the pain. Inj. enema nicotianæ statim. Horâ 9^{a} A.M. The tobacco enema has caused great sickness and flatulence, slow pulse, most copious perspiration, and general relaxation and freedom from pain, but did not produce fæcal stools: ℞. extr: colocynth: comp: ℥j. ft pil: xij st: sumendæ. Cont. pil: calomel. Applic. empl: lyttæ hypochondrio dextro. Hora 3^{a} P.M. rep. pil. cath., which at length procured

stools, consisting of bile and loose fæces, that gave great pain during their evacuation. 24th. He is free from pain and fever; the pulse is soft and frequent; the blister has drawn; he has, however, had several stools of mucus and a white coagulum during the night and this morning, which were attended with much tenesmus.—Capiat ol: ricini ℥j. et cont. pil: ex hydr: submur: &c. 6ᵗʰ horis. 25th. He was sent to the hospital for the reasons stated in the last case, where the mercurial course was continued, and he progressively recovered.

The faulty inattention, on the 19th, 20th, and 21st, to our established practice of repeating the use of cathartics until they forced fæcal stools, was productive of danger, and arose from the assistant surgeon and myself visiting the patient at irregular hours, without meeting. On the 23d, hepatic inflammation seemed to be connected with the dysentery.

CASE V.

May 21*st*, 1811, John Macfarlane, æt 26, has sustained many attacks of dysentery during our residence in India. He now complains of frequent stools of mucus, serum, and blood; accompanied with tenesmus and tormina; but he is not particularly deranged by it: cap. hydrargyri submur: gr. vj. statim, cum magnesiæ sulph: ℥iss, et, P.M. cont. ℥ss. omni horâ donec operav. Horâ 6ª P.M. He has not been able to retain all the salts on his stomach, and they have not operated; *a constant pain of the hypogastre;* the stools frequent; the pulse 65, and full.—R. Pulv. jalapæ ℥j. syr. q. s. ut ft. pilulæ xij. quarum cap. iv. omni 4tâ parte horæ. ℞. Hydrarg: submur. gr. vj. pulv: ipecacuanhiæ gr. vij. ft pil: st: sum: dein cap. pil: ex hydr: submur: gr. iij. pulv: ipecac: gr. ij. &c. 6ᵗʰ horis. Bibat sæpe dec. hord. callid.—Diet of barley water and tea. 22. The cathartic has operated powerfully during the night; the pains have abated; he perspires freely; he has no fever; the pulse 75; the stools, to-day, consist of bile, a thick mucus rather copious, and a little serum. Cont. pil: ex hydr: submur: —As the constant fixed pain of the hypogastre evinced an inflammatory tendency, I de-

termined to try if such a case could be cured by promoting more copious sweating than existed at present, and, with this view, ordered him pulv. ipecacuanhæ ℈ss, frequent warm diluent drinks, and to use the bed-pan without arising from bed. Horâ 3ª P.M. a copious sweating and an almost constant nausea have been maintained, but *the pain of the hypogastre continued constant and fixed, and is now acutely felt on moving the body, as if there were a "tight corded "lump or weight" within the hypogastre*, which turned to the right or the left, as he moved from one side to the other in bed; *the pulse has risen to* 100 *and is full.*—Mitt. sanguis. The extraction of sixteen ounces gave great relief. He had three mucous and serous stools in rapid succession, before bleeding, from assuming the erect posture, which were accompanied with much tenesmus, and he had three loose fæcal stools after bleeding. Rep. pil. 6ⁱˢ horis, et cap. opii gr. j. h. s. 23. The bleeding occasioned syncope, but he soon declared himself "another man from it," so greatly did it benefit him; and in two hours the pulse fell to 82. He has slept considerably since he was bled, and during the night; he has had only three stools last night, the last of which is scanty and serous; the pulse is 80 and soft. Horâ 9ª he had one loose fæcal stool; he has still a pain in the hypogastre on moving the body, but it is less like a weight than yesterday. Rep. pil: 6ⁱˢ horis.—At six, P.M. he had only one stool to day; the pulse 84; his pains and complaints abate, and he continues to perspire. Cap. opii gr. j. h. s. et rep. eum pilula, 6ⁱˢ horis, si occasio fuerit. 24. He had only three stools last night, which were natural and of more compact consistence; he vomited twice last night; the bowels are easy at all times, except on going to stool; he perspires freely; pulse 82; omitt. pil, et capiat pulv: ipecac: comp: gr. v. olei menthæ pip: ♏j. 6ⁱˢ horis. 25. The bowels were purged rather more last night; the stools are fæcal. Rep. pulv. ipec: co: ℈ss 6ⁱˢ horis et pil: bis die. 26. Ptyalism is induced, the stools are fæcal and mixed with a little bile. Rep. pulv. et omitt. pilul. 27. Salivation continues; the bowels are easy and becoming regular; the fæces are more compact. Rep. pulv: bis die. 28. Ptyalism continues, he has had five stools since last night. Rep. pulv: 23. He had only one stool last night. Rep. pulv. gr. v. mane, et ℈ss hora somni. 30. Four loose stools since yesterday; bowels easy. Rep.

med^a. 31. He has had five purging stools during last night, but the bowels are easy, and his general health, recovers. Rep. med^a. June 1st 2d. He is acquiring strength fast; the bowels are lax; the mouth is nearly well, and ptyalism has almost ceased. Omit. medicamenta. 3d, 4th. He acquires strength; bowels lax; appetite good. 5th, 6th. The bowels are too loose. Cap. pulv: ipecac: co: ℈ss hora somni. 7th. The bowels are regular and continued so. He was sent to duty on the 12th.

In the three preceding cases, bleeding was deferred, until purgatives, mercurials, and diaphoretics had failed to remove the symptoms; and, in my opinion, they strongly evince the *propriety, if not the absolute necessity*, of having recourse to it, whenever symptoms, indicative of inflammation of any of the abdominal viscera, are present.

In Macfarlane's case, the inflammatory symptoms increased after copious purging, and during a profuse perspiration, circumstances which appear to prove that they could not have been cured by either, whilst they were soon removed by venesection.

CASE VI.

July 1st, 1809.—James Murray, æt. 21, private of the 56th regiment.—Horâ 6^a P.M. Complains of constant pain across the umbilicus, and frequent stools of mucus, attended with tenesmus and tormina. Capitat Hydrarg: submur: gr. vj. cum magnesiæ sulph. ℥iss statim. July 2d. The cathartic procured fæcal stools, and he has had none of any kind since twelve last night: but dysenteric evacuations, with their usual attendants, recurred in the course of to-day, *and a constant acute pain of the hypogastric region, with fever gradually supervened.* He was bled, and after sixteen ounces were drawn, the pain was relieved. ℞. Hydrarg. submur: gr. iij. pulv. ipecac. gr. ij ol: menth. pip. g^tt j. sap. q. s. ut ft pil. 6^{is} horis sum.—Low diet. 3d. The constant pain of the hypogastre is removed; the dysenteric evacuations have ceased; but the bowels are uneasy, although not purged. ℞. Pulv. rhei

gr. xv. aq. menthæ pip. ʒiss. ft haustus mane sum. et capiat pulv. ipec. comp. ϑss. aq. menthæ pip. ʒiss vespere. July 4th. The bowels were regular in the morning; but during the day, he passed some mixed stools of blood and fæces. Rep. pulv. rhei ϑj. et cont. pilula ex hydrargyri submur. &c. He also complained of pain at the epigastre, to which a blister was applied. 5th. The purging continues of a mixed nature, but the pain at the epigastre is relieved.—Rep. pilula. 6th. The bowels have been painful, and he has frequent, scanty, griping stools of a mixed nature. Rep. p. rhei et pilula. 7th. He has only had one stool last night, and is much easier.—Rep. pil. 8th. He was griped last night, and has had some scanty stools.—Rep. p. rhei et pilula.

As these cases are chiefly adduced to prove the utility and propriety of bleeding in the inflammatory stage of dysentery, I shall briefly state, that, from the continuance of the above irregularity in the nature and manner of the intestinal evacuations, it was found necessary to excite ptyalism, which was induced on the 18th, before the dysenteric symptoms yielded, and the morbid discharges ceased, and I suspected, that a diseased state of the liver maintained the irregular irritation in the bowels, and the irregular action of their secreting vessels.

CASE VII.

Reported and treated by Mr. W. Griffiths, my assistant surgeon.

Chumpee, China, October 2d, 1810.—Benjamin Johnstone, æt. 25, marine, complains *of a constant fixed pain of the hypogastre;* he has had frequent mucous stools mixed with blood, during two days, and attended with tormina and tenesmus; *the pulse is quick; the tongue is dry and bilious*, i. e. yellow; *he has pyrexia.* He was bled directly, and after fourteen ounces were drawn, he experienced great relief.—Capiat hydrarg: submur: gr. vj. cum magnesiæ sulphat: ʒiss statim, et rep. magnes. sulphat: ʒss. omni hora donec operav^{t}. Horâ 6^{a} P.M. He has had four fæcal stools, and two mucous ones since, without any mixture of blood; the abdominal pain is considerably relieved. ℞. Hy-

drarg. submur: gr. iij. pulv. ipecac. gr. iij. ol. menthæ pip. ℥j. sap. q. s. ut fiant pil. 6ta horis sum. 3d. He has had very frequent stools in the night, which were dysenteric, and attended with tenesmus and tormina; the pain continues in the hypogastre, and has again become constant. Repr. haustus cath. salin. mane, et pilula 6ta horis. Infricatur ung. hydrargyri fort. ʒj. hypogastrio bis die.—Horâ 6a vespere. The cathartic has operated well; the pain continues in the hypogastre; the skin is hot and dry, and he is thirsty; the pulse quick and full; the tongue white.—Utatur pediluvio. ℞. Ant. tartar gr. ¼, nitrat. potassæ ʒj. aquæ ʒiss, ft haustus 6ta horis sum. He also took an anodyne during the evening, as he was much purged, and continued the pill and the ointment. 4th. He has had frequent stools in the night, all of which were fæcal; he has perspired freely; the hypogastric pain and fever have much abated; the tongue is foul.—Rep. haust. anod. mane, pilula et unguent.—Rep. etiam haust. antim. h. s. 5th. He has had nine or ten stools in the night, all of which were fæcal, but mixed with a considerable quantity of bile; he vomited three times yesterday; the mouth is a little affected by the mercury: the pulse is frequent, but not so quick; the hypogastric pain has entirely left him.—Omit. pil: et rep. alt. med. 6th. He has had very frequent fæcal stools in the night, but the bowels are easy; the sickness has left him, and the fever is slight.—Cont. ung. et cap. p. ipecacuanhæ co. ʒss. olei menthæ pip. ℥j. 6ta horis.—Injiciatur enema anod. if the griping, tenesmus, and purging become severe. 7th. He is less purged, but the stools are occasionally mixed with mucus; the bowels are easy.—Rep. medª ut heri. 8th. The mouth is very sore, and ptyalism is freely induced; he has only had six purging stools, but he was much griped this morning.—Omit. ung: hydrarg. fort.—Cont. pulv. ipecac. co. et injiciatur enema anod. h. s. 9th. He has only had three purging stools last night, which were natural, and the bowels were easier. Rep. pulv. et enema.

This case became chronic. The bowels were subsequently very irregular; the regular fæces being sometimes retained, while morbid, bilious, and intestinal secretions were frequently passed, so that an assiduous attention to the use of mild purgatives, such as oleum ricini, was necessary to assist the intestines to evacuate

them. At other times, the bowels were too much purged, and required the use of anodynes with absorbents and aromatics: tormina was occasionally so violent as to render frequent fomentations necessary, and approximated once so near to a constant pain as to require a blister. The inflammatory symptoms, however, did not return; and he was sent to duty November 15th. Bleeding by leeches, might have been useful on the 3d October.

CASE VIII.

July 17th, 1811.—Michael O'Neale æt. 25, complained yesterday of very frequent stools, consisting of mucus and blood, and accompanied with tenesmus and tormina, for which he took a saline cathartic and calomel in the morning, and pulv. ipecac. comp. gr. xv. hora somni, with warm diluent drinks during the night to promote perspiration. To day, he complains of a *constant fixed pain about the umbilicus, and the pulse is 90 and hard;* he had two copious fæcal stools in the night, and six others, the last of which is a mixture of fæces and morbid secretions. Mittatur sanguis ad ℥xvj. capiat pilulam ex hydrarg. submur. gr. iij. pulv. ipecacuanhæ gr. ij. &c. 6ta horis.—Hora 6ª, P. M. The umbilical pain is not constant, but is occasionally felt like tormina; he has had four stools to-day, chiefly fæcal, one only being mixed with a little mucus. Rep. pilula, et capiat opii gr. j. hora somni. Low diet. —18th. He complains of his "belly being hard," and of being griped; his last stool was scanty, thin, and of a green color; he has alternately tormina and perfect ease. ℞. P. jalapæ ℈ss. ol. menth. pip. ♏ j.—ft pil. ij omni hora sum. donec operavt. Contr pilula sine opio.—Horâ 6ª. P. M. He had had eleven fæcal and one mucus stool, and feels much easier. Rep. pilula, et captª. dec. hord callid. sæpe.—19th. He is still griped between the intervals of ease, which last a quarter of an hour; he has had five stools, consisting of a small quantity of mucus mixed with fæces. Rep. pil. 6tis horis ut antea.—Horâ 6ª, P.M. He is less griped, and has had six fæcal stools, mixed with a little mucus. Capiat ♁pii gr. j. hora somni.—20th. The mouth is affected by the mercury; he had only four stools last night, consisting of a small quantity of fæces; bowels easy. Perspiration has been maintained throughout the course of

the disease. Cap. pulv. ipecac. co. ℈ss. vespere.—21st. Ptyalism is induced; the mouth is very sore; he had four stools last night, the last of which consisted of mucus; he is griped, and he had purging stools during the day. Rep. pulv. meridie, et hora somni. —22d. He has had four stools without any admixture of morbid secretions; ptyalism continues, and the mouth is sore. ℞. Dec. cinchonæ ʒij. acid. sulph. dil. ♏ xx. ft haustus ter die sum. et capiat pulv. bis die.—23d. The bowels are becoming regular. Rep. med.—24th. The ptyalism continues copious, he had two loose stools yesterday, and three last night. Rep. med.—25th. The throat and neck sore, from the increased action of the salivary glands; the acid smarts the gums much; he had only too stools last night. Cont^{r} dec. cinchonæ sine acido, et rep. pulv. vespere. —26th. The same. Rep. med.—27th. He had four stools yesterday and three last night; bowels easy; the fæces are more compact. Rep. med.—28th. The appetite is great; he had only two stools last night; the bowels are easy; ptyalism and sore mouth continue. Rep. med.—29th, 30th. No material alteration. Rep. med.—31st. He had some griping and five scanty stools, which consist of tenacious mucus and a little blood; the mouth nearly well. Capiat pulv. rhei ʒss. mane, et cont^{r}. dec. cinchonæ cum acido sulph. dil. vespere.—August 1st. He had five fæcal stools yesterday, and eight mucous stools since. Rep. dec. cinchonæ cum acido ter die.—2d. He had four stools last night, which are thin, and of a greenish cast, but he has not passed any blood or mucus; he uniformly recovers his general health. Rep. med. cum acid sulph. dil. g^{tt} xiv. singulo dose.—3d. He had had five stools since yesterday, which were thin, fæcal, and not copious. Rep. med.— 4th. He has had six stools, the last was something like mud. Rep. pulv. rhei gr. xv. et dec. cinch. cum acido. 5th. He recovers his general health; the bowels are nearly regular, and the fæces are again of a healthy color. Rep. med.—6th. The bowels are too lax; cap^{t} conf. opii ʒss omni nocte, et cont^{r} med.—On the 10th, the bowels became regular and continued so. The medicines were continued from the 6th. He returned to duty on the 12th.

The three preceding cases exemplify the whole detail of the treatment of this variety of acute dysentery, when the symptoms do not yield to the most important antiphlogistic remedies, bleeding, pur-

gatives, and diaphoretics, so peculiarly applicable to the cure of inflammatory diseases; for if these do not succeed, then the use of mercurials is to be urged, until ptyalism be produced, after which a progressive recovery ensues; or the disease becomes chronic, if the acute stage has occasioned more derangement of visceral structure, than can be adjusted in a short time, as occurred in B. Johnstone's case.

CASE IX.

Ganjam, December 31*st*, 1808.—Monsieur Hourie, ætat. 20, an "aspirant" in the French navy, had been nineteen days ill of dysentery, before he was received on Board the Belliqueux for a passage to Madras, fourteen of which he had been under the management of a "native doctor;" he did not know what medicines had been given to him, but, during the last five days, an English surgeon had prescribed three grains of hydrargyri submurias and pulv. antim. and one of opium every six hours.—Dec. 31st. He has frequent evacuations, consisting of blood and mucus; he has *great pain of the lower belly from the navel to the pubis, which feels hard and is swelled, and the pain is increased on pressure; the cutaneous heat is great, and the fever is considerable.* He was bled directly, and felt quite free from pain and very faint, before eight ounces were drawn. Dein ℞. magnesiæ sulphat, ℥iss, statim sum. et P.M. rep. magn. sulphat. ℥ss. omni horâ donec operav'.—Hora 6ª P.M. He has had two stools every hour, consisting of blood, fæces, mucus and serum, and has taken five doses of salts. ℞. Hydrargyri submur. et pulv. ipecac. āā gr. ij. ol. menth. pip. ♏ j. saponis q. s. ut fiat pilula omni horâ sumenda. Let him use a hip bath, and drink warm diluents to promote perspiration.—January 1st, 1809. He had stools every hour last night, chiefly consisting of blood, but some are more feculent this morning; *he has had cold rigors; he vomits often; the pyrexia continues, although he perspires; he is very restless;* and I fear the symptoms indicate that suppuration is already induced; the tongue is white. Rep. pilula 2^di^ horis, et utatur potione supertartratis potassæ pro re natâ.—2d. He has had many dysenteric stools, but they are not

so frequent this morning, and he has slept a little; the fever continues; the pain is every where felt in the abdomen on pressure, and it continues swelled; nausea and vomiting are incessant, and appear to arise from internal abscess; the tongue is white; the pulse is quick.—Rep. pilula et pot. 3d. The fever continues; he vomits often; he has less pain and tormina; the stools are scanty, loose, and fæcal.—In the evening, he complained of pain of the left hypochondre, extending to the shoulder. Rep. pilula 6ta horis. Let a grain of opium be added to each pill, if he be too much purged. 4th. The fever continues with restlessness and jactitation; he has no sleep; he is very weak; he has vomited much; he has had frequent stools; the side and shoulders are less painful; in short, his case was thought to be hopeless, and our attention was directed to smoothe his path to the grave by opiates, and to relieve the nausea and vomiting by the saline mixture used ad libitum.—His sufferings were scarcely mitigated by large doses of opium; his lower belly became harder and more painful to the touch; cold sweats, cold extremities, a weak, quick pulse, and increasing debility supervened, and he died on the 6th.

I was permitted to examine his body. After the usual incision in the course of the linea alba, I attempted to penetrate the abdomen at the umbilicus, but was prevented by adhesions. On making a small opening into the abdominal cavity, a little above the umbilicus, a fetid and nauseous gas escaped; the abdomen was then laid open up to the ensiform cartilage, and a large quantity of thick pus, partly green and partly white, was found in the epigastric region, which appeared to have escaped from between the membranes forming the great epiploon, that contained more of the pus. The liver was perfectly sound.—The peritonæal coat of the stomach was inflamed.—An inseparable adhesion had taken place between the abdominal peritonæal membrane and the peritonæal coats of the intestines, all round the parietes of the abdomen below the navel, and the intestines adhered so closely together and to the other abdominal contents, except the liver, that we could not separate them for examination.

Mr. S——, who had been a surgeon twenty years in the East India Company's service, and was on board at this time, was con-

sulted in this case, and was decidedly averse to bleeding, for "he "had never wet a lancet in India:" he, however, admitted the propriety of it, when the inflammatory nature of dysentery was so strikingly evinced on dissection.

I apprehend suppuration was induced before the antiphlogistic treatment was adopted, for it never relieved the disease materially; and he had all the symptoms of internal suppuration, on the 2d day after I prescribed for him.

This case and the following illustrate the observations in chap. vi. sect. v. on the incompetency of mercury to produce salivation, during the existence of abscess, or of a high degree of inflammation; but others, much more remarkable, occurred.

CASE X.

At sea, November 13th, 1809.—Richard Bagnall, ætatis 23, has been purged two days very much, and he says the dysenteric stools commenced yesterday morning; he has had twenty stools last night consisting of blood and mucus; he complains of *a constant pain of the belly, which is hard and painful to the touch;* the *pulse is quick and small;* he has not symptoms of fever at present, but he appears exhausted. ℞. Hydr. submur. pulv. ipecac. āā gr. iij. ft pilula statim sum. cum haustu e magnesiæ sulph. ℥iss. He was placed in bed, and warm diluents were given; time was allowed him to recover from the apparent exhaustion, that we might then discover the real state of disease.—At 3, P.M. he perspired, and had been purged by the cathartics; *the pulse rose; the skin was hot; the abdomen is hard, and the pain of it is great.* He was bled directly, and felt greatly relieved after sixteen ounces were drawn.—Applr empl. lyttæ abdomini; continuatur pilula supra præscripta 6ta horis, et capiat opii gr. j. if he be too much purged. 14th. The skin perspires very freely; the pain of the abdomen has abated; but he has had one stool every hour, consisting of blood, fetid fæces, and a white coagulum, floating in serum; he feels vertiginous in the erect posture; he is restless,

uneasy; and has had very little sleep; the pulse is weak and quick; *he had severe rigors last night.* Rep. pilula et capiat nitr. potassæ ℈j. cum pilula.—Vespere. He has had several stools, during the day, of blood, mucus, and serum, and some of fæces; the abdomen is easier, and he has no tenesmus, but complains of wind; he has *vomited often to-day, and has been very uneasy and restless.* Cont. med. et infricatur ung. hydrarg. fort. ʒj. femore bis die. 15th. The skin became dry and hot last night at 8 o'clock, and has continued so; he vomits very often on taking any thing into the stomach, and sometimes much wind; he has a stool every hour, chiefly fæcal, and sometimes consisting of much dark bloody fluid; he has had little sleep, and tosses incessantly from side to side; the constant pains have ceased. At 9 o'clock there was much flatulence, and he had severe pains along the whole intestinal tube, from the anus to the stomach.—℞. Misturæ cretæ ʒiss, olei menthæ pip. ♏ j. tincturæ opii et tinct. lavendulæ co. āā ♏ xx. ft haustus statim sumendus.—Cont. pilula, et bibat potion: supertart. potassæ pro re natâ, nausea et vomitu urgente.—Meridie. He has perspired profusely; he has complained much of the pains; the restlessness, &c. continue—Injr enema anod. which appeared to give some relief, as he was little easier all the afternoon; but the vomiting is incessant, and the dysenteric stools are frequent, the last of which was a quantity of liquid fæces. Rep. pilula cum add. opii gr. j. et ol. menth. pip. ♏ j. cont. etiam fr. merc. et enema anod. h. s. 16th. Nothing has given more than temporary relief; the vomiting is incessant; the stools are mixed; the abdomen is easier, though hard and painful to the touch; the pulse is weak and quick, and the patient is much exhausted by his restlessness and sufferings; the vertigo continues in the erect posture. Rep. pilula et fricat. merc. The last anodyne injection had no soothing effect. At 7, A.M. I had no hopes of recovery left, and prescribed five grains of pure opium, which gave relief from nausea, and diminished the frequency of intestinal evacuations; but he vomits every thing; the jactitation is extreme, and he tosses about in his bed very often: the pulse becomes weaker and quicker; the respiration is laborious, and attended with sighing; the debility increases.—Rep. opium vespere. 17th. He is restless and delirious; the pulse is scarcely perceptible; he has frequent retchings; the stools are less frequent;

the extremities are becoming cold; and he has every symptom of speedy dissolution, which took place at midday.

Hourie's and Bagnall's were the only cases of *acute* dysentery, that terminated fatally in my practice, from 1807, the period the rigid antiphlogistic practice was combined with the mercurial, to the autumn of 1811.

Cases of the Severe Variety of Acute Dysentery.

CASE XI.

Chumpee, in China, October, 30th, 1810.—Edward Angling, ætatis 30, quarter-master, complains of intestinal evacuations every half-hour, consisting of a small quantity of blood and mucus, and attended with tenesmus and tormina; but he has no constant pain of the abdomen, or fever; the tongue is white.—Capiat hydrarg. submur. gr. vj. cum magnesiæ sulphat. ʒiss, statim, et post meridiem. —Rep. magn. sulph. ʒss, omni horâ donec operav^{t}, et capiat hydr. submur. gr. iij. ipecacuanhæ pulv. gr. iij. 6ta horis.—Low diet. 31st. The cathartic operated freely yesterday, but the pure dysenteric discharges soon recurred, after the fæces were discharged; the patient has had about twenty stools last night of mucus and blood, which were accompanied with tormina and tenesmus; he perspires, but the skin is rather hot although moist; the griping is almost constant; the pulse is frequent and weak.—Rep. haust. cath. omni horâ donec operav^{t} et pilula ex hydr. submur. 6ta horis. —Utatur fotu abdomini. Let him be bled if the pain become constant even for half an hour. Horâ 6^{a} P.M. He has had frequent fæcal stools mixed with a little mucus and blood; the pulse is very quick; the griping is less severe and frequent; he perspires.—Rep. pilula, et appl. empl. lyttæ abdomini. Nov. 1st. He had fourteen evacuations last night, six of which were fæcal; he is griped occasionally, and has a little fever.—Rep. pilula 6ta horis cum antim. tartar. gr. ¼ soluta in aqua ʒij.* 2d. He has had fifteen

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* The treatment of this case was conducted by Mr. Griffiths, my assistant, from the 1st to the 7th, and the antimonium tartarisatum

sools during the night, only one of which was natural; he is griped at intervals, but he has no fixed pain or fever. Rep. pilula. Omit' antimon. tartar. et infricatur ung. hydrarg. fort. ʒj. hypogastrio bis die. 3d. He had twelve stools last night, three of which were fæcal; the bowels are flatulent, and consequently much griped; salivation is induced.—Capiat haustum cathart. salinum mane, et haust. anod. carmin. hora somni cum tr. opii gᵗᵃ. xiv.' 4th. He has had four purging stools in the night; he has a sensation of soreness in the bowels which does not amount to pain; the salivation is copious and the mouth is very sore.—Utatur gargarism: aluminis, et ℞. Pulv. ipecacuanhæ comp. ℈ss, olei menthæ pip. ♏j. ft pulvis 6ᵗⁱˢ horis sum. 5th. He had four mucous stools last night, and none of fæces; the bowels are easy.—Capiat magnesiæ sulphat. ʒss. mane sol. in aqua menthæ piperitæ. 6th. He has had five stools, and is quite easy; ptyalism continues.—Rep. pulvis. 7th. He has had three mucous stools last night, and none of fæces since the day before yesterday; the bowels are easy; the salivation continues. Capᵗ olei ricini et aq. menth. pip. āā ʒiij. mane, et pulv. ipecac. co. ℈ss horâ somni. 8th. He feels much better, and recovers his general health; he has had one natural and three mucous stools; the bowels easy; the salivation continues. Rep. pulv. bis die. 9th. Ut heri. 10th. He has had four mucous and not any fæcal stools.—Capiat pulv. rhei gr. xv. mane, which procured three natural stools.—℞. mist. cretæ ʒiss. ol. m. pip. ♏j. tr. opii gᵗᵃ xij. ft haustus h. s. s. 11th. He improves generally; he had only three loose fæcal stools last night.—Rep. pulv. bis die. 12th. He has had six fæcal stools in twenty-four hours; the bowels are easy; ptyalism has ceased, and he recovers appetite and strength.—Rep. medicamenta. 13th. The bowels are lax; he improves daily.—Rep. med. 14th. The bowels are more regular and easy.—Rep. med. 15th, 16th, 17th. He has only had two or three stools in twenty-four hours, which are lax and fæcal; he recovers his general health fast.—Rep. med. 18th. He improves rapidly.—Rep. med. 19. The bowels are regular, and the stools compact.—Rep. pulv. ipecac. co. gr. v. bis die. 20th, 23d. The

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was a favourite remedy of his, to excite perspiration, in this disease. It is to be regretted this able and humane surgeon is not promoted.

bowels are regular.—Rep. med. On the 24th, He was returned to duty quite well.

CASE XII.

Coringa Bay, on the Coast of Coromandel, June 29th, 1808. —Henry Cartie, æt. 25, has had a great number of intestinal evacuations this morning, consisting of mucus and blood, and attended with tenesmus and tormina; he has no constant pain or fever; but is languid. He states that his dysentery has been preceded by a "common purging" or diarrhœa, during four days. ℞. Hydrarg. submur. gr. iij, ipecacuanhæ pulv. gr. ij, olei menthæ pip. ♏j sapon. q. s. ut fiat pilula 6^{is} horis sumenda. To drink warm and bland demulcents often.—Low diet. June 30th. The evacuations consist of mucus, and are attended with tenesmus and tormina. He states himself to be "very weak from having fasted three days."—℞. Olei ricini et aquæ menthæ pip. āā ʒvj. ft haustus mane sum. cont. pilula. To have congee and sago, as often as he likes. July 1st. The cathartic procured some free fæcal stools, which were followed by sleep, and great relief from all the symptoms; he had no stool last night, but has passed two of mucus and serum this morning; his head aches, and he has some tormina; the stools inspected in the evening were dysenteric.—Rep. pilula. 2d. "He feels better in the bowels," that is, they are tolerably easy; he had no stools last night, but he had three *black* stools this morning; the mouth is sore from mercurial irritation.—Rep. pilula 8^{vis} horis. 3d. Ptyalism is induced; the stools are natural; the bowels are lax, though not purged.—Omitt. med. Light diet to be still observed. 4th. Ptyalism continues; he feels better; the bowels are regular and the fæces soft. 5th, 6th. The bowels are regular, and he is, in every respect, a convalescent. 7th. The bowels in this case continued regular. As the salivation subsided, his diet was improved, and with it his general health, which was rapidly recovered. He returned to duty on the 20th.

This case exemplifies the mode of treatment, when dysentery is preceded by diarrhœa. Complete relief from pain, regularity of bowels, and a cessation of the morbid secretions of the intestinal

vessels were in this, as in many other instances, the immediate consequences of the induction of ptyalism.

CASE XIII.

Coringa Bay, July 3d, 1808.—Angus Graham, ætatis 29, complains of having had about forty evacuations since yesterday, which appear, on inspection, to consist of a thick white mucus, like jelly; he has severe tormina and tenesmus; he is sick, and has vomited, but has no fever nor constant pain. ℞. Pulv. jalapæ ʒss, hydrargyri submur. ϑss. saponis q. s. ut ft. pilulæ sex statim sum. et injiciatur enema cath. Rep. pil. meridie et vespere, si non operav'. Low diet.—4th. He has not passed a fæcal stool, but the dysenteric ones, now consisting of mucus and serum, are very frequent, and attended with much tenesmus and tormina; he perspires; the sickness and vomiting left him yesterday. Capiat hydrarg. submur. ϑss, et magnesiæ sulphat. ℥j statim, et rep. ʒss omni horâ vel semi horâ donec operav'. Capiat etiam pilulam ex hydrarg. submur. et pulv: ipecacuanhæ 6ta horis.—5th. The persevering use of the salts, as often as the stomach could conveniently retain them, procured a copious natural stool this morning, which has given ease to the bowels, but the tormina and tenesmus are troublesome; the mouth is a little sore. Rep. pilula, et inj^{r} enema anod: mane.—6th. The enema procured several hours sleep, and recovered him from a jaded and exhausted state: the stools are less frequent and dysenteric, but he complains of soreness within the abdomen: ptyalism is induced. ℞. Pulv. ipecacuanhæ comp: gr. v. olei menthæ pip. ♏j. ft pil. bis die sumenda.—7th. The ptyalism continues; the bowels are nearly regular; he is free from pain, and the morbid secretions no longer appear in the evacuations. Omitt. med. Let him still observe a mild bland diet.—8th, 9th. The bowels are rather too lax: rep. pulv. ipecac. co. g^{r} v. horâ somni.—10th. He was purged three times last night. Capiat pulverem bis die.—11th. The bowels are regular, and he recovers generally. Omit. med.—12th, 13th, 14th, 15th. The salivation has gradually subsided; the bowels continue regular; he recovers fast.—16th. He

was purged last night; the stools are scanty, and he has some griping. ℞. Pulv. rhei gr. xv. mane sum. et pulv. ipecac. co. ʒss. horâ somni.—17th. He had five intestinal evacuations last night, but they were scanty and accompanied by tormina. ℞. Pulv. rhei ʒj. aq. menthæ pip. ℥iss. ft haustus mane sum. et rep. pulvis vespere.—18th. The bowels are regular. Omitt. med.—19th, 23d. His general health has uniformly improved, and his bowels have continued regular; his appetite is good. He still observes a light diet, easy of digestion. On the 30th he returned to duty.

CASE XIV.

His Majesty's Ship Belliqueux, at sea, April 14th, 1810.—William Wiley, ætatis 25, marine, has very frequent stools of mucus, attended with tenesmus and tormina; the abdomen is swelled; he has no fever; the pulse is not disturbed. ℞. Hydrargyri submur. gr. vj. statim sum. cum magnesiæ sulph. ℥iss. This had not operated in the evening. Capiat magn: sulph: ℥ss. omni hora donec operav., et rep. hydr. submur. gr. vi. Low diet.—15th. The cathartic has purged him freely, and still continues to act very much; he has vomited this morning. ℞. Pulv. ipecac. comp. ʒss. aq. menth. pip. ℥iss. ft haustus statim sum. et ℞. Hydrargyri submur: g^r iij, pulv: ipecac. g^r ij, opii g^r j. ft pilula h. s. s.—16th. He had no stools till this morning, and they were fæcal. Rep: pulv: ipecac: co: g^r v. He had some slimy stools mixed with blood in the course of the day, but is tolerably easy. Rep: pilula, ut heri, hora somni.—17th. He has had three stools last night, consisting of mucus and serum, and attended with tenesmus and tormina; he has perspired. Rep: haust: cathar: salin: cum hydrarg: submur: g^r vj. et pilula ut antea, horâ somni, as the cathartic had operated freely.—18th. He had frequent mucous stools in the night and is sometimes griped. Rep. pilula 6^{is} horis sine opio.—19th. He had one copious fæcal stool last night, and four dysenteric ones; he is easier. Rep. pilula bis die, et capiat opii g^r j. h. s.—20th. He had four fæcal stools last night, and two dysenteric ones of blood and morbid secretions; he has tormina still, and feels

weak. Rep: pilulæ ut hori.—21st. He has had four dysenteric stools of the same quality as yesterday's, and one fæcal one, but only suffers pain at the period of evacuating them. Rep. pilula, 6ta horis sine opio. Continue low diet.—22d. He had six fæcal stools and two dysenteric ones, but the bowels are easy. Rep. pilula cum opio.—23d. He has had three fæcal stools this morning and not a single evacuation of any kind in the night. Rep. pilula cum opio bis die.—24th. He has been purged much, and is very sick; the stools are fæcal. Rep. pilula.—25th. He has had eight stools since yesterday, which chiefly consist of fæces. ℞. Mist. cretæ ʒj. ol. men: pip. ♏j. tr. opii gtt. x. ft haustus bis die sum.—26th. He had three stools last night, which were wholly fæcal, the bowels are easy. Rep. med.—27th. He has had four fæcal stools since yesterday. Rep. med.—28th. The bowels are regular, but he became sick and vomited bile in the course of the day. Sumat· haust. cath. sal. vespere.—29. He was purged often in the night; the bile was determined through the intestines, and the sickness has left him. Rep. mistura cretæ cum opio.—30th. The bowels are open and easy, and he has only had one stool since yesterday; he feels much better, and recovers his general health. Omitt. med.—May 1st. He has been sick and vomited bile again; the nausea is constant; the bowels are very uneasy. ℞. Pulv. jalapæ ℈j. syrupi q. s. ut fiant pilulæ iv. statim sum. Vespere. The purgatives have cleared the bowels. Capiat pulv. ipecac. co. ℈ss. horâ somni.—2d. The bowels are again easy; the stomach is settled and retentive; and he has not had any stool since yesterday. Omit. med.—3d. The bowels are regular and continued so, and he recovered his strength without the further aid of medicine.

This case evinces, that salivation is not always a necessary condition in the cure of the severe variety of dysentery. That it is not the inflammatory one has been already shewn.

CASE XV; ATTENDED WITH TRISMUS.

His Majesty's Ship Belliqueux, March 7th, 1807.—Henry Cooke, ætatis 27, marine, has been much subject to attacks of dy-

sentery, and increased secretions of bile. He complains to-day, that he has had very frequent intestinal evacuations, and such distressing tormina and tenesmus, that he has been on the seat in the head of the ship* almost the whole of the night; the stools consist of mucus and blood, the abdomen is painful, and he has a little fever; the jaw is locked, and he can scarcely speak from the mouth being so closely shut; he is much agitated and exhausted from his want of sleep and his sufferings during the night; the pulse is quick. As I knew the patient to be readily susceptible of mercurial irritation, I determined to try to cure both complaints at once by salivation. ℞. Hydrargyri submur. ʒss. pulv. jalapæ ʒss. ft bolus statim sum. cum olei menthæ pip. ♏j. et rep. meridie. Infricatur ung. hydrarg. fort. ʒss. bis die abdomini et femoribus. He was placed in bed, and covered up warm; fomentations were used to the abdomen, and perspiration was excited and maintained by warm diluents often administered. The cathartic operated during the day, and at bed time, he took hydrarg. submur. ʒss. opii gr. iv. for the jaw was still locked as firm as in the morning.—8th. Ptyalism is already induced; he has perspired freely; the jaw is considerably relaxed, and the dysenteric stools have disappeared. All medicine is to be omitted, except opii gr. ij. horâ somni.—9th. The trismus is removed; the bowels are regular, and the morbid secretions from the intestines have ceased. The salivation excited, became very profuse, and rendered the use of aluminous gargles and fluid diet necessary, until ptyalism subsided, after which he recovered his general health uniformly, without the assistance of medicines.

Cases of the mild Variety of Acute Dysentery.

CASE XVI.

Trincomalee, Island of Ceylon, October 20th, 1808.—Robert Joynson, æt. 22, has had very frequent evacuations which consist

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* The necessary for the men on board a ship, is in the head of the ship, exposed to the open air, and the locked jaw was probably occasioned by his taking cold from the exposure during the night.

of a small quantity of mucus and blood, and are accompanied with much tormina. ℞. Hydrargyri submur. gr. vj. statim sum. cum magnesiæ sulph. ʒiss. Hora 6ª vespere. The cathartic operated freely, and has procured very great relief, yet the bowels are uneasy. ℞. Hydr. submur. gr. iij. opii gr. j. olei menthæ pip. ♏j. ft pilula hora somni sum. Low diet.—October 21st. He has had three stools in the night, which were copious and natural; the bowels are easier; he has perspired. Rep. pilula mane, et capiat pulv. ipecac. comp. ϑss. hora somni.—22d. The stools are not very frequent, and are whitish. Rep. med.—23d. The bowels are regular, but the stools continued rather white, which causes me to apprehend a permanent deficiency of hepatic secretion. ℞. Hydrarg. submur. gr. iii. sapon. q. s. ut fiat pilula omni mane sumenda. ℞. Pulv. rhei et zingiberis āā gr. v. Decocti cinchonæ ʒiss ft haustus h. xj. A.M. sumendus et rep. vespere sine pulvere rhei.—24th. He had two stools last night which are very scanty and griping. Cap. haust. cath. ex oleo ricini mane, et pulv. ipecac. co. ϑss. h. s.—25th. The stools are natural in color and consistence, and the bowels regular. Omit. med.—On the 27th he was well, and returned to duty.

The dysenteric discharges ceased in this mild case, from the operation of a single cathartic, and the excitement of perspiration.

CASE XVII.

At Sea, September 8th, 1808.—Robert Stephens, ætatis 24, is subject to dysentery. Horâ 6ª P.M. He complains of having evacuations every two hours, consisting of a small quantity of mucus and blood, and preceded by pains in the bowels. ℞. Haust. cath. sal. statim cum hydr. submur. gr. vj. Low diet.—9th. The cathartic has induced free purging, which was suffered to continue all day. Cap. pilulam anod. horâ somni.—10th. The scanty dysenteric stools have recurred this morning. Capiat olei ricini et aq. menth. pip. āā ʒ vj. mane, et pulv. ipecac. co. ϑss. hora somni.—Bibat sæpe dec. hordei callid. post cubitum.—11th. The patient

has still scanty stools with griping, although he has perspired.—Rep. med. ut heri.—12th. He had two copious yellow stools during the night, and is easy. Cap. pulv. ipec. co. gr. v. mane.—13th. Is quite well and continued so.

This case exemplifies the method of cure by purgatives, and anodynes alternated, which is only successful in similar mild cases.

CASE XVIII.

At Sea, Sept. 6th, 1810.—James Fitzgerald, ætatis 28, complains of frequent stools, consisting of blood and mucus, and attended with tenesmus and tormina; he has caught cold, is hoarse, and has the usual symptoms of catarrh. ℞. Hydrargyri submur. gr. iij. antimonii tartarisati granum dimidium, sap: q: s: ut fiant pilulæ ij. statim sumendæ cum magnesiæ sulph: ʒiss. The patient was ordered to his bed, and free perspiration was promoted by the use of warm diluents. Hora 6ª: P.M. he perspires freely, the cathartic has operated frequently, and he is better. Capiat pulv: ipecac: co: ʒss horâ somni, et cont: potio callida.—September 7th. He continues to perspire freely, and the symptoms have greatly abated; he has had six loose fæcal stools this morning. Rep: pulv: ipecac: co: 6ª horis.—8th. The bowels are regular; and continued so; he was, however, affected with cough until the 14th.

In this case, checked perspiration was very evidently the remote cause, and the restoration of a copious perspiration had, in all probability, more effect in suppressing the unnatural dysenteric secretions from the intestines, than the action of the purgative; and, in similar cases, I have found the excitement of perspiration most beneficial.

OF

SCORBUTIC DYSENTERY,

WITH SOME FACTS AND OBSERVATIONS RELATIVE TO SCURVY

Genus. Scorbutus.—Species. Dysenteria Scorbutica.

This disease is called, by the French surgeons, putrid dysentery, and has been so denominated by some English authors; but the general outline of its character certainly resembles that of idiopathic dysentery.

Frequent evacuations of mucus, serum, or blood, or a mixture of these, *with some fæces*, attended and preceded by tormina, and accompanied and followed by tenesmus, together with the existence of some positive or obscure symptoms of scurvy, constitute the principal characteristic symptoms of this disease.

The obstinate retention of fæces, so common in simple dysentery, but rarely occurs in this; and the occasional inflammatory fever, of idiopathic, is very seldom met with in scorbutic dysentery.

The stomach generally loses its relish for salted meat, and acquires a particular taste for acids, fruit, and fresh

diet: an ardent desire sometimes arises for milk and other articles of diet, which cannot be obtained at sea, and which are devoured with the greatest gratification and pleasurable feeling when procured in harbour. It often becomes extremely irritable; constant sickness prevails; and all fluids or food taken into this organ in their usual quantities, are rejected by vomiting. I have known black clotted blood ejected by vomiting in this disease. The frequent vomitings often occasion pain about the præcordia, the edges of the false ribs, loins, and abdomen, and induce headach, with sensations of great weakness. The cause of the pains, in the direction of the false ribs, loins, &c. may be referred to the attachments of the diaphragm, and the pains are most probably induced by the convulsive action of that muscle in vomiting. It is probable, in many cases, that a morbid alteration in the secretion of gastric juice takes place, in common with that of many other secretions, when the scurvy has long prevailed. The stomach is sometimes painfully distended with flatus, and affected with acidities.

The appetite and powers of digestion are soon impaired, and, in late periods of the disease, are sometimes partially or totally suspended; even after the scorbutic diathesis is removed, and the dysenteric evacuations have ceased, the digestive powers remain impaired, and are, sometimes, but slowly restored to their natural healthy state. My experience, in this respect, differing essentially from Dr. Trotter's, who declares, that no symptoms of a weak stomach are present in scurvy.—*Page* 102 *of his work on Scurvy*. The appetite and powers of digestion are, in general, gradually restored, in the ratio, that the patient recovers from the intestinal derangement.

A bad state of health, precarious appetite, general weakness, emaciation, and diarrhœa, are often preludes to scorbutic dysentery. The diarrhœa sometimes prevails for a few days, and produces weakness and emaciation, even when the symptoms of scorbutic diathesis are so very obscure, as to lull suspicion, or to avoid detection. This morbid state soon loses its doubtful character; scorbutic symptoms become unfolded; an increased and altered action of the vessels, which secrete intestinal mucus, takes place; and serum, mucus, sanies, and black clots of blood, are evacuated with or without fæces. These evacuations are frequent, and attended with tenesmus and tormina; but they are not, commonly, so frequent as in acute dysentery. The natural fæces are not obstinately retained in scorbutic dysentery; for, in most cases, the intestines are readily excited to discharge their contents by the stimulus of the mildest cathartics, and it generally happens, that without the use of aperients, some fæces are passed every day, either mixed with the morbid secretions, or independent of them; yet it sometimes happens, tho' rarely, that the bowels are in a state of constipation, which requires the use of active catharties.

After a few days duration, and at all times of the more advanced stages of the disease, the bowels are lax, or a combination of diarrhœa and dysentery exist together, until, finally, a lienteric state of the viscera is induced.

The fæces, in this disease, are often black or white, two opposite appearances, which denote a deficiency of bile, or a morbid secretion of that fluid.

The evacuations are not so uninterruptedly maintained,

as in acute dysentery; for it sometimes happens, that the patients pass a great number of evacuations in a short period of time, and are the whole day afterwards free from them: yet, in advanced and dangerous stages of the disease, the evacuations are sometimes very frequent, and are repeatedly excited after every period of taking food. The fæces, the dysenteric discharges, and black clots of blood, are occasionally very fetid, and denote a dangerous state of disease and putrefaction; some "ramenta," or exfoliations of the villous coat, in a putrid state, are occasionally discharged with the stools in the advanced stages of this disease.

Some of the intestinal vessels, it is apprehended, are occasionally ruptured in this disease, as sudden and profuse hæmorrhages of dark blood have occurred, and induced syncope, coldness of the surface, and such excessive debility, as to render all medical remedies unavailing.

The anus, in some cases, becomes excoriated, and the sphincter is frequently paralysed before death.

Pains of the abdomen, from flatulence, are sometimes severely felt, and tormina most commonly precedes and accompanies the stools, but is not an invariable attendant. I have never observed the constant fixed pains, accompanied with fever, which characterize the inflammatory variety of acute dysentery: a general soreness and uneasiness are commonly felt in the bowels; and the fat of the abdominal parietes and contents, as of the omentum, mesentery, &c. being absorbed, the abdomen often appears to be shrunk towards the back.

Tenesmus is frequent, but neither it nor tormina are often so severe, as they are in idiopathic dysentery.

The abdomen has been sometimes affected with scorbutic dropsy, or ascites, which has preceded the dysentery in some instances, and supervened in others. When the scorbutic ascites has preceded it, the dysentery has much conduced to its removal, and has occasionally effected it entirely: on the other hand, scorbutic dysentery sometimes disappears, and the scorbutic dropsy is induced.

Scorbutic dysentery is disposed to assume the form of any chronic variety, to which the patient has been subject, at any previous period of his residence in a tropical climate. The cicatrices of former ulcerations of the intestines, occasioned by an idiopathic attack, assume, in scorbutic dysentery, the same ready disposition to be disorganized and ulcerate again, as, in scurvy, is observed in the scars of wounds or ulcers of external surfaces. When the disease is prolonged at sea, and the patient's constitution continues to be influenced by the remote causes of scurvy, the inner surface of the intestines becomes ulcerated also from the "mordax humor", or the peculiar morbid secretions and morbid action produced by scorbutic diathesis, which confers a strong disposition to ulceration, hæmorrhage, and mortification in all cellular and membranous parts deranged by its influence, and which, in protracted cases of scorbutic dysentery, induces also hæmorrhage from, or mortification of, the coats of the intestines, attended with fetid stools, fetid breath, general fetor of the whole body, and a dark cadaverous appearance, that are soon followed by death.

Those who are affected with simple dysentery at sea, are also very liable to have its form changed to the scorbutic, with increased and and protracted sufferings, if a charitable arrangement of the captain and surgeon does not provide a substitute for the salted diet allowed to sailors

for their subsistence, *alike in health and in scorbutic disease, when it is an absolute poison and a cause of loathsome corruption!!!*

Worms, of the lumbricus genus, have been evacuated in this as in simple dysentery.

After the scorbutic diathesis has been corrected, the patients, in a few cases, become subject to some of the chronic varieties of simple dysentery.

The liver in this disease is variously affected. In the mild cases, the functions of the liver do not suffer any evident morbid derangement or change: in other cases, a sudden flow of bile sometimes takes place, which gives pain to the bowels, and increases the number of the evacuations, and this sudden increased secretion is often followed by a temporary suspension of its secreting function. The biliary secretions appear to be sometimes suspended from the want of the natural and due stimulus of proper food, and from defective nutrition. I have seen the liver much swelled in three instances of scorbutic dysentery combined with scorbutic dropsy, and, from the rapid manner in which the tumor was produced, from the prevalence of dropsy, in other parts of the body; and from the swellings subsiding suddenly, without the use of calomel or any mercurial preparation, and not in the gradual manner, inflamed swellings or other tumours are removed; I have no doubt, but the liver was affected with the enlargement common in dropsy. The dropsical fluid, in bad cases of scorbutic dropsy, gravitates to the most depending part of the cellular texture of the body, similar to, but not so readily as, water in a sponge; it is, however, done with incomprehensible facility and quickness.

The kidneys generally seerete but little urine, and, from this cause, it is sometimes very aerid and stimulating, and produees strangury.

The pulse is not often deranged: but when tenesmus and tormina prevail, it becomes more frequent, and in advanced stages of this disease, when the patient is mueh debilitated, the pulse is small, weak, and quick.

The skin, in this disease, most eommonly undergoes an alteration in appearance, if the patient continue exposed to the influence of the remote causes. At first, the face may be rather blue or livid in partieular parts, although it is generally of a dull pale eolor, or of a peculiar dark hue, and the skin of the face and extremities feels somewhat cool or cold. In a short time, the skin discovers less equivoeal marks of scorbutie diathesis. Black blotehes, purple petechiæ, or extensive ecchymoses, appear in different parts of the body, more partieularly in the hams and lower extremitics, although the other parts of the body are by no means exempt from these diseased appearanees. The eicatrices of old ulcers assume a livid appearanee, which is often the first mark of scurvy; and these cieatrices sometimes progressively ulcerate, and the imperfeetly organized parts beneath them beeome destroyed by mortifieation.

The lower extremities, and other parts of the body, are often affected with dropsy; and henee the skin feels eold, and pits on being pressed by the finger.

That heat of skin, which indicates fever and increased action of the subeutaneous vessels, is a very rare oeeurrence, unless temporarily excited by improper stimulants; on the contrary, the skin is generally cool, and denotes a

languid and weak circulation of the extreme vessels, and is rough and puckered, like the appearance called goose-skin.

Among the most early symptoms of scurvy, may be reckoned a peculiar saline smell of its cuticular exercetions, particularly those of the hands and feet, which is observable in this, as in the other species of scurvy. The tongue seldom shews any marks of disease; but the gums almost constantly indicate a state of scurvy, and in recent mild cases, they will generally be found a little spongy, of a dark purplish color on their upper edges where they envelope the teeth, and disposed to bleed from the slightest injury, as from masticating a biscuit: and if the disease uninterruptedly develope all its horrid scorbutic accompaniments, the gums become spongy, swelled, ulcerated, separated from the teeth and sockets, fetid, surmounted with large black clots of blood, and now and then mortified; they sometimes bleed copiously, and the teeth drop from their sockets.

General debility and emaciation supervene early in the complaint.

This disease may co-exist with any of the species of scurvy, and but too often supervenes, to increase the catalogue of the patient's sufferings, during the existence of other scorbutic symptoms, or is induced, in advanced stages of other species of scurvy, to hasten the fatal catastrophe.

It is singular, that, in some cases, scorbutic dysentery is cured before the scorbutic diathesis is removed, and even when other scorbutic symptoms shall be aggravated; while, in others, it continues, when the scorbutic diathesis is gradually receding, or is removed.

In this disease, the mind, countenance, and eye, discover evident marks of despondence, languor, and apprehension, which it is the duty of benevolence and humanity to attempt to obviate by every consolatory act of kindness; by painting in happy colors the prospect of a speedy arrival in harbour, and of a consequent certain termination of disease; and by endeavouring to fortify the patient's mind, so as to bear the disease with hope, firmness, and resignation.

The predisposing and remote causes of this disease are sea diet; previous disease of any kind that induces, or has been followed by, debility; tropical climate; weakness, any how induced; deficient diet, whether vegetable or animal; and a disposition left to a particular recurrence of diseased action in the intestinal vessels, from previous diseased affections of them. I have seen so many good, cheerful, hard working men, affected by this and other species of scurvy, that I see no reason for enumerating indolence, and melancholy disposition, among the particular predisposing causes, although my experience, in this instance, is at variance with the statements of many very respectable writers.

It must be admitted as a general truth, that scorbutic dysentery prevails almost exclusively among people who are compelled from their situations, on board ship, during long voyages or cruizes, or in a town long besieged, (as Gibraltar,) to make salted meats a principal part of their diet: yet, it is no less certain, that it is induced, as well as scurvy in general, under very extraordinary circumstances of diet; and even when no salted meat whatever has constituted a part of it.

His Majesty's Ship Belliqueux, of 64 guns and 500 men,

arrived in Bombay harbour on May 2d, 1809, and remained there until the 20th of June, during which time, the men were liberally supplied with fresh beef and vegetables every day; they were a lunar month on shore, while the ship was undergoing repairs in dock; and although they were rather crowded at night, in buildings erected for their reception in a ravelin of the fort, yet they had, in rotation, the range of the island and of the town, and opportunities of purchasing fruit and other antiscorbutic luxuries. On the 28th of June, during the rainy season, the ship took on board fresh beef, live bullocks, and vegetables, sufficient to serve to the people, daily, until the 2d of July, and sailed from Bombay harbour, with some transports hired to convey troops to occupy the Island of Roderique. On the 10th of July, scurvy began to prevail among the ship's company, and when we reached Roderique, on the 4th of August, no less than 200 men were affected by it, although the usual allowance of the prophylactic ounce of lime-juice and sugar had been daily mixed with their grog, so as to form punch, during the whole time we had been at sea, and continued to be so issued until our arrival off Pont-de-Galle, on the island of Ceylon, on the 10th of September. Here is an instance of scurvy having been generally induced among a ship's company, in five weeks! Some particular instances are also worthy of notice.

Nicholas Fitzakerly, who had been on the sick-list for the cure of rheumatism from the period of our sailing, and had been supplied, in consequence, with fresh or pickled Bombay onions every day during the voyage, and had eaten very little salted meat, became affected with unequivocal marks of scurvy, on the tenth of July, as did some others: ecchymoses were formed on the legs and in the hams, the flexor tendons of which became stiff and painful.

James Ryan became affected with mild dysentery, on the 2d of July, and subsequently never tasted salted meat, but had the best diet the sick birth could supply, which consisted of vegetables daily, of fowl and fowl-soup, with onions occasionally, sago, tea, sugar, congee, and wine: yet, much black blood was passed with his stools on the 19th, and on the 22d, the gums were scorbutic, and the black blood continued to be evacuated.

John Magennis and Richard Barry had been long on the sick-list for the cure of chronic dysentery, and had not eaten any salted meats; but as the great number of sick on board did not admit of their partaking of the sick stock of fowls every day, and their diet was scanty and poor, the dysentery assumed the scorbutic form, and their gums became spongy and scorbutic on the 23d of July.

Roger Gillin and James Yarwood had been on the sick-list for the cure of bilious fever, during the voyage, and being similarly circumstanced for diet, as the preceding cases, had also often partaken of the fowl and fowl-soup, and had not eaten any salted meat; yet they became affected with scorbutic dysentery, on the 25th of July, the unequivocal nature of which became apparent on the 29th, when the gums proved to be spongy and affected with scurvy. These are instances of scurvy being induced at sea, in about four weeks, without the agency of salted meats!

On the arrival of the Belliqueux at the uncultivated and almost uninhabited island of Roderique,* it was directly

* The island was inhabited by a single French family, which reared animals, and cultivated vegetables, sufficient only for their own consumption

occupied. The seine and fishing lines were employed in taking fish, which abound on its coral shores, and were caught in such large quantities, as in general to supply each of the ship's company, daily, with one or two pounds. Many of the scorbutics were sent on shore, but they did not recover faster by the change of air and situation, than those who remained on board. Parties were dispersed over the island to collect oranges, limes, or any kinds of fruit or vegetables, they could find, to be distributed among the scorbutics; but very few vegetables were obtained for them, and none for the general use of the people. The daily allowance of lime juice and sugar continued to be issued to the ship's company. Under these comparatively advantageous circumstances of diet, the ship remained at Roderique from the 4th to the 22d of August, and yet sixteen cases of scorbutic dysentery were induced during the period of eighteen days, besides many other cases of scurvy. On the 23d of August, the day after we left Roderique, James Moore was placed on the sick list. He had been attacked with bilious fever and diarrhœa in June, but soon recovered. He was now affected with scorbutic dysentery; the gums were spongy and black; the legs affected by ecchymosis; he is weak and sallow, and has a dusky hue of the face. This man's strong predisposition to scurvy was known to me, and he had, in consequence, partaken of the fruit, and been served a full allowance of fresh fish, with pickles, occasionally, during our stay at the island. Francis Weaver and William Jackson became affected with scorbutic dysentery on the 28th, being only six days after we sailed from Roderique.

I might adduce many individual instances of the early induction of scurvy among seamen in a tropical climate;

but I shall content myself at present with adducing two, the subjects of which generally sailed from port in perfect health, and aware of their strong scorbutic predisposition, *voluntarily abstained* from their allowance of salted meat.

George Parsons, one of the sick attendants in the Belliqueux, usually went to sea in perfect health, yet I have once known him to become affected with scurvy in a week, and always in so short a space of time, that the sick-birth diet could not protect him even with lime juice ad libitum; and he perished after the China cruize, shortly after our arrival in harbour.

John Hays, purser's steward, during the last two years of our sojournment in India, always became affected with scurvy in a few days after sailing from port, if he were not continued on a *full diet of fresh animal and vegetable food*, and, in this instance, an unlimited allowance of vegetables, pickles, and lime juice, *without fresh animal food*, did not avert scorbutic diathesis and its effects, scorbutic ulcer, &c.

A ready predisposition to this diathesis is acquired by a very short residence between the tropics, and is attached to the seaman as long as he remains there; as the following history will demonstrate. His Majesty's ship Belliqueux arrived in the East Indies, on the 22d of April, 1806. She remained in Madras roads until the 13th of June, and was very little at sea, until she sailed from Back Bay, Trincomalee, on the 26th of October, with His Majesty's ships Culloden, Powerful, Russell, Terpsichore, and Drake, under the command of Rear-admiral Sir Edward Pellew, Bart. now Viscount Exmouth. We had live bullocks and vegetables to serve to the people until the 29th. We

reached Batavia Roads on the 27th of November, where the squadron destroyed a frigate, seven brigs of war, and twenty merchant ships, and captured some rich prizes; after which the Culloden, Sir Edw. Pellew's flag-ship, and Belliqueux, sailed on the 1st of December, and reached Malacca Roads, on the 1st of January, 1807. Lime juice and sugar had been served out during the whole voyage; yet on our arrival in port, more than 100 scorbuties were on the sick-list, and some had been cured on the passage.—The ship, from this period, remained at Malacca or Prince of Wales's Island, until the 10th of May, and was amply supplied the whole time with the best buffalo beef and good vegetables of Chinese cultivation. On the 16th, we sailed from Prince of Wales's Island for China, and carried buffalos and vegetables sufficient to serve the people, until we reached Malacca on the 25th, where we took on board as many as supplied us until the 31st. We anchored in Macao Roads, in China, on the 9th of June, and remained until the 9th of July; but, from an unfortunate misunderstanding that had arisen (as I was informed) between Captain Wood of the Phæton frigate, and the "Compradore," who usually supplied the navy with fresh beef and vegetables, we did not obtain any, until Capt. Byng purchased 24 bullocks at Canton, of which nineteen were received on board on the 4th of July, and furnished the ship's company with fresh beef until the 13th, and the sick with two days beef on the 23d. No vegetables were purchased with the bullocks, or supplied in any way. On the 9th of July, we sailed from China, and after cruizing through the China seas, and Eastern Archipelago, we arrived at Malacca on the 2d of October, with only 36 men on board free from scorbutic affections, and we lost more than twenty during the cruize, and as many after, without the possibility of giving them

assistance; for lime juice was not then allowed, in India, for sea-issue to the ship's company; none was obtainable for the sick at Prince of Wales's Island, and some purchased in China was bad, and in small quantity; and, it is well known, that no fresh animal or vegetable food, or any powerful antiscorbutic, except lime juice is allowed by government to the sick and scorbutics at sea. We regretted and pitied those that fell victims to a want of proper prophylactics! but we could not assist them, nor had we the power to prevent similar occcurrences.

Scurvy was early induced in both the above voyages or cruizes, although one lasted hardly more than two months, and the other not quite three, from the time we sailed from China.

On our passage to the East Indies, scurvy did not prevail; and many ships in Europe, cruize four or five months at sea, without a seaman becoming affected with scurvy. Is there a single instance of it in India? The records of Sir Ed. Hughes's squadron, and of the Powerful, the Russell, the Albion, the Drake, the Terpsichore, and the Belliqueux, between the years 1806 and 7, will answer the question in the negative; for the latter lost 500 men from scurvy in a cruize of less than five months' duration.

I shall finish this history of facts relative to scurvy, by the following.

On the 23d of September, 1808, the Belliqueux sailed from Madras Roads, where fresh beef and vegetables are invariably supplied, taking as much fresh beef, live bullocks, and vegetables, as supplied the people daily until the 28th, and arrived at Trincomalee on the 11th of October, where

the ship's company were daily supplied with a pound of fresh beef, and the purser's scanty allowance of vegetables. Under these circumstances of diet, thirteen cases of scurvy appeared, seven days after our arrival in harbour, although no symptoms had been noticed at the time we anchored; and I was obliged to write a letter on service to represent the necessity of increasing the quantity of vegetables, which was attended to, and the additional supply effectually checked its further progress. On the 27th, the Belliqueux sailed from Trincomalee, for Calcutta, with the ill-fated Indiamen, the Jane, Duchess of Gordon, and Bengal,* carrying to sea, fresh beef, live bullocks, and vegetables sufficient to issue to the ship's company their daily allowance, until the 2d of November, and arriving off the Sand Heads on the 18th of December, anchored in Ganjam Roads, on the 22d, with seventy on the scorbutic list, four of which were affected with scorbutic dysentery, that had been induced in three of the cases, as early as the 6th of December.

The opuntia, or nopal leaf, supplied by the philanthropic Dr. Anderson, had been used by the people during the voyage, but did not prove equal to the certain cure and prevention of scurvy, even with the assistance of the daily allowance of an ounce of lime juice, and of pickled onions five days in the week.

The Belliqueux, with a convoy, sailed from Macao, in China, on the 14th of February, 1811, and was transferred by a fair wind in four days from a cold to a torrid climate; the ship sailed through the straits of Banca and Sunda, crossed the South Pacific Ocean, and was nearly lost in encountering the gales of the "stormy spirit of the Cape,"

* They both sunk in their passage home, and all hands perished!

before she reached St. Helena on the 25th of May. On our arrival, there were 60 scorbuties on board, notwithstanding several had been cured during the voyage. On the 9th of June, the Belliqueux sailed from St. Helena, and arrived in the Downs on the 11th of August. Several cases of scurvy occurred during the latter part of the voyage, but only one man was sent to the hospital on our arrival in England, and he was affected with scorbutic ulcer, and only one died during the voyage, which was from the fracture of a cervical vertebra. This exemption from the ravages of disease was principally obtained from the means adopted to prevent scurvy and to secure a nutritive diet to the sick and convalescent. About 4000 lbs. of potatoes, carrots, and onions, besides pomkins; 2000lbs. of pickles, made on board, chiefly of onions; 12 dozen fine capons, and six bullocks, were taken to sea from Macao, for the use of the sick and scorbuties. The arrangements to prevent and counteract scurvy were these: every man on the sick list, or who had the slightest wound or ulceration, or who had manifested a predisposition to scurvy on former voyages, was supplied with one pound of potatoes or other vegetables on four days in the week, and pickles ad libitum with his salted meats on the other three days. The pomkins with lime juice, orange peel and spices, made good mock-apple pies. When a bullock was killed, or a donation of a quarter of mutton was made, all above described were supplied with fresh meat and soup, and abundance of vegetables. The capons, with onions, pomkin and rusk, made excellent soup, and a light diet for the worst cases of disease. Every man had his daily allowance of one ounce of lime juice, and from 4 to 8 oz. were daily prescribed to those much affected by scurvy. The greatest attention to the use of those prophylactics, did not prevent several cases from becoming worse during the voyage, when our supply of

fresh animal food was diminished, but these soon recovered at St. Helena, where we obtained an unusual large supply of live stock, and a most ample supply of good vegetables. At St. Helena, some poultry and Cape sheep were purchased for sea-use, and nearly as large a proportion of vegetables and pickles were appropriated under similar arrangements as to distribution; and as the voyage to England was shorter than from China to St. Helena, the Belliqueux arrived in an unpreeedented state of health.* The eomplement of the Belliqueux was 491 men, and if government would establish supplies on the liberal and ample seale we spontaneously provided for our men, the result would no doubt be equally gratifying and suceessful. Preserved meats on Messrs. Donkin's plan should be supplied, where there is diffieulty in carrying live stock on board, and it is with the greatest pleasure reeorded, that the Commissioners of the medical department of the navy, have established a supply of preserved meats for the siek of the Navy, since the first edition of this work. But whilst the seientifie medieal offieers of the Navy have been progressively aecumulating facts that have led to the establishment of a rational system of diet for the prevention and cure of seurvy, and the restoration of eonvaleseents; it would seem that the speculative on shore have disregarded those facts, and been retrograding into an opposite system of dangerous and fatal experiment. At the Penitentiary, Millbank, a national prison for reform of criminals, eontaining 850 conviets, the committee, consisting of some members of parliament and other persons, established a scheme of diet for the convicts, on the 4th of July, 1822, by which fresh animal

* No one had died on the passage, and there was only one hospital case on board, when we anchored in the Downs, on August 11th, which was a case of scorbutic ulcer, such was the success of our preventive measures.

and vegetable food in substance was entirely excluded from their diet, and for dinner they substituted about a pint of broth per day, made from $1\frac{1}{2}$ ounce of beef, boiled up with some farinaceous, and esculent vegetables. This diet was continued until March 3d, 1823. In February, the common symptoms of scurvy appeared, which were soon followed by numerous cases of scorbutic dysentery, some of which proved fatal. The scurvy pervaded almost all the prisoners, and proved fatal in several instances. After the scorbutic diathesis was corrected, an intractable species of dysentery and diarrhœa became so prevalent among the prisoners, that the physicians are said to have finally pronounced it to be contagious, and the sick convicts were entirely removed from the prison; the men on board a ship,* and the women to the Ophthalmic Hospital. During the prevalence of scurvy, some post mortem examinations were made by Mr. Copland Hutchinson, who found the same ecchymosed state of the lower part of the alimentary canal that was evident in the legs of those who died of this complaint—ulcerations were also found in the intestinal canal. It will hardly be believed by posterity, that the committee for managing the convicts, not only adopted the scheme of diet, which has proved so fatal and disastrous, without originating it in any medical authority, but contrary to the advice of their enlightened and experienced medical superintendant Mr. C. Hutchinson, and the schemes of diet given in by him, Sir James M'Gregor and Dr. Magennis. If not in law, surely, in foro conscientiæ, they will be deeply answerable.

From these facts, I may e permitted to draw some conclusions.

* The Ethalion frigate, fitted up, at a great expence, for the purpose.

Many authors of reputation who have written on scurvy, have delivered an opinion, that it prevails most, and is soonest induced, in a cold climate.—*Vide Boerhaave, Cullen, &c.*—Supported by the facts I have adduced, and by my general experience in tropical climates, and, indeed, in every climate of the world; I must offer it, as a law of the disease, that, cæteris paribus, it is much earlier induced between the tropics, than in temperate and cold latitudes.—It is possible, that the copious perspiration in the tropics occasions a quicker change of the fluids of the body, and produces the above result, by sooner introducing a large quantity of chyle prepared from salted meats and sea diet; at all events, the fact is positive, and the medical attention, in the Indian tropics, is, at sea, more directed to the prevention and cure of scurvy, than to all other diseases.

A diet of salted meat is not absolutely necessary to the production of scurvy between the tropics; and, in the summer season, in Europe, I have seen the scorbutic ulcer induced in the Baltic, in the cases of Joseph Smith and Lindsey Bates, who never tasted salted meat; were allowed as many potatoes and pickles as they chose to eat; were given a case of fresh lemons and plenty of lime juice; and yet were not cured, until they were sent on shore, and placed on the full allowance of a naval hospital,* and had the advantages of a change of air. The above cases, and those of George Parsons, John Hays, &c. would almost induce us to infer, that sea air is sometimes the sole cause of scurvy.

A full diet of farinaceous food, without animal, is no security against the induction of scurvy: as those wary

* Under the care of that able surgeon, Mr. A. C. Hutchison, at Deal; now of the Westminster Dispensary, &c.

seamen experienced, who, with the view of preventing scurvy from affecting them, refrained from eating their salted meat, and subsisted on farinaceous vegetables.

Scurvy may be induced in any one, at sea, or on shore, whose diet is not sufficiently nutritious, whatever may be the articles of the materia alimentaria of which it is constituted.

The cases of scurvy, that occurred during our continuance in Trincomalee harbour, authorize the inference, that a diet of fresh animal food, with an insufficient quantity of bad vegetables, is not a certain security against the induction of scurvy among seamen. In short, *there is not a certain prophylactic of scurvy, except a full diet of fresh animal and vegetable food; for it is only under those circumstances that I have not known it to be produced.* The effects of the experiment at the Penitentiary confirm this conclusion.

Dr. Trotter's celebrated restorer of oxygen to the blood, the citric acid,* as it is preserved in bottles, and issued to seamen, in the limited quantity of an ounce daily does not preserve its credit as a prophylactic in a tropical climate; and, notwithstanding its use, I very much suspect, that the Belliqueux would not have had sufficient men left in health, to have navigated her back from the Island of Roderique to India, if the scorbutic diathesis had not been corrected or subdued by the fish and fruit obtained during our stay at the island, and yet it was only a voyage of two months and a half.

* The term citric acid is used for lime or lemon juice, as well as for the chemically prepared "citric acid," in a concrete state.

The cases of James Moore, Francis Weaver, and William Jackson authorize us to infer, that a full diet of fresh fish, with a small quantity of fruit, (oranges and limes,) does not prove a certain preventive of scurvy.

In what I have said of citric acid, or lime juice, as it is issued to His Majesty's navy, I would not be understood to deny it some effect in the prevention of scurvy; but experience, the unerring test of medical remedies, will not place too much confidence in it between the tropics, and the quantity must be much increased to arrest its progress.

From the scurvy having attacked a large proportion of those men at Roderique, who had been previously ill at Bombay, it may be inferred, that previous disease is a predisposing cause, but this inference will be very strongly supported by a fact, which may be here introduced with propriety.

I have observed, that it is almost an universal and invariable law of scurvy, to assume those forms of internal disease, to which any of the internal viscera have been subject, at no very distant period; and, to discover marks of external disease, in those parts of the body, which have been lately injured by accident, and which it is probable, had not recovered their original perfection of organization, or natural vigor of action. Thus, when scurvy has prevailed, (and I have seen it pervade the whole of our ill-fated ship's company,) I have seen it affect the lungs of those with cough, dyspnœa, fatal hæmoptysis, or hydrothorax, who had recovered from pleurisy, catarrh, or cough, a few months before. Those who have lately recovered from simple dysentery or diarrhœa are most subject to scorbutic dysentery; those lately recovered from

rheumatism are affected with pains resembling the rheumatic; and I have seen the tunica conjunctiva of the eyes of patients, who had been afflicted with acute ophthalmia, affected with scorbutic ecchymosis. Extravasation of blood ensues again in those parts of the cellular texture of the body, which have been lately injured, or where the blood vessels had been previously ruptured by any external violence. I have known this law of scurvy so strictly observed by Nature, as to produce singular and whimsical effects; thus, George White and Terence Derkins, who had been copiously salivated, twice became affected with copious scorbutic ptyalism. Several seamen, who had lately received black eyes from fighting, again became graced with a pair, by the scorbutic effusions of blood, that had taken place in the cellular texture around the eyes, and I have once seen it re-produce a black ear.—Scorbutic ecchymosis around the ancle, foot, leg, or other parts of the body, which have previously experienced external injury from sprains and contusions, are common.

Newly organized parts, and cicatrices of ulcers and wounds, are destroyed by a gradual process; extravasation is first observed, next succeeds an unhealthy secretion, which elevates the skin of the cicatrix in the form of a vesicle, containing a dark fluid; this, at length, bursts, and is succeeded by ulceration, hæmorrhage, mortification, &c. But it is unnecessary to exemplify further this law of scorbutic action at present.

The discrepance of authors, on the proximate cause of scurvy, induces me to think, that it has not been clearly and satisfactorily developed; and I fear that any attempt of mine to explain the proximate cause of scorbutic dysentery, which is the same as of scurvy in general, would be

as nugatory as it would prove useless. The learned Boerhaave, indeed, thought it no difficult task, for, after an accurate enumeration of symptoms, he adds, "ex quibus "liquet, hujus morbi naturam et effectus *non difficulter* elici "ab his, qui prædicta expendunt." *(Aphorism.* 1152.) "Et "causam ejus proximam esse eam sanguinis indolem, qua "et erassitie simul in una, et tenuitate acri salsa, *alcalica*, "vel *acida* in altera parte peccat." *(Aphorism.* 1153.) The celebrated Dr. Cullen retains the humoral pathology, and supposes the proximate cause of scurvy to be a preternaturally saline state of the blood, and thinks that an ammoniacal salt chiefly pervades the blood in scurvy.—Dr. Darwin assigns scurvy to a defective action of the absorbent system. Dr. Lind to a debility of the digestive organs, &c. Sir F. Milman's "proximate cause consists in the "gradual diminution of the vital power, by the remote "causes of the disease." Sir Gilbert Blane's proximate cause seems to consist in "a defect of the living tone "and irritability of the fibres in general, particularly those "of the vascular system, and also a diminution of their "elasticity and simple cohesion."—*Diseases of Seamen.*

Dr. Trotter appears to have investigated this subject with a view of refuting all former opinions, and of establishing a new, more consistent, and satisfactory theory of the proximate cause: he concludes his reasoning and researches, by the following observation—"The proximate cause of scurvy "is, therefore, nothing else but a something abstracted from "the body by the remote causes; and from what has been "just delivered, we pronounce that to be vital air."—This is a chemical theory, and ought to be proved by philosophical experiment; but without entering into the controversy that has been raised, whether oxygen is or is not

imparted to the blood by absorption, during respiration, and its passage through the lungs, I must observe, that Dr. T. has not informed us, by what chemical or natural process the vital air "is abstracted from the body" in scurvy, nor by what means it becomes deficient, as he ought to have done; for the action of respiration and the pulmonary circulation, except in scorbutic hydrothorax, dyspnœa, and hæmoptysis, remain perfect, and enable the lungs freely to imbibe oxygen from the air, in every species of scurvy. I have been in the black hole of Calcutta; there was a fatal deficiency of oxygen, when our captive countrymen were confined there, yet scurvy was not produced among its ill-fated tenants, that survived.

Let me not censure ingenious theories, for I have none to offer, which will reconcile the discordant variety of opinions entertained by so many able and learned physicians.

"Non nostrum inter vos tantas componere lites."

Besides, such a discussion might be thought unnecessary here, as I am not treating of scurvy as a genus, but of one of its common species of disease; and, in my opinion, the phenomena of scurvy are too various and manifold, to be briefly explained by a simple principle.

In scorbutic dysentery, the local proximate effect of the scorbutic diathesis on the intestines, is the same as its influence produces on other mucous membranes, which have been previously subject to morbidly increased secretion, or on external parts, which have been previously ulcerated. In scorbutic hæmoptysis, the hæmorrhage is generally preceded by a morbidly increased secretion of the bronchial membrane, occasioning cough and expectoration: this secretion is at first mucus, but soon becomes mixed with a

dark blood, forming a sanious sputum, till, in the progress of disease, the membrane is destroyed, and a fatal hæmorrhage ensues. So, in scorbutic dysentery, the morbid secretions at first observed in the intestinal evacuations, are commonly mucus and serum, which afterwards become mixed with blood and exfoliations of the villous coat, and, if the disease proceed in its desolating career, without restraint, hæmorrhage ensues. If, however, the patient have previously sustained the chronic variety of dysentery C, resulting from an ulceration of the intestine, then we may suppose (for the process cannot be seen, as in external parts,) the cicatrix to be raised by a scorbutic vesicle, which, on breaking, leaves an ulcerated surface disposed to bleed, like other scorbutic ulcers, and to put forth a grumous and sanious discharge; in this case, this grumous and sanious discharge, and dark blood, are very early observable in the intestinal evacuations, after the induction of the disease, and the same variety of chronic dysentery may remain after the scorbutic diathesis is removed.

The prognosis of this disease will be favorable, when the means of recovery, or a proper diet, are at our command; when the means employed are greatly beneficial; and when the strength gradually increases, and the morbid discharges suddenly or gradually cease. It will be necessarily unfavourable, when there is only a distant prospect of obtaining a fresh and proper diet; when there is no citric acid available to arrest the influence of scorbutic action; or, when the patient is so much reduced, and the digestive organs so much impaired, at the period of arrival in harbour, as to induce a belief, that the patient has not strength left to support the diarrhœa, almost always excited by the effects of a necessary change to a diet, containing vegetables or sub-acid fruits.

When we have *some, but inadequate, means* of arresting the progress of the disease; of obviating scorbutic diathesis; and of affording ample nutrition, the patient is gradually exhausted by the long continuance of the complaint.

Extreme emaciation and debility are always dangerous.

The induction of lientery, after a return to fresh diet, is extremely dangerous; although patients sometimes linger, a month or more, in this state.

The evacuation of ramenta, or exfoliations of the villous coat, is dangerous; if they be putrid, it is often a fatal symptom.

Rupture of the blood vessels, followed by copious hæmorrhage, is generally fatal.

Extreme fetor of the patient, or a putrid fetor of the body, which is generally accompanied with insensibility, is fatal.

Fetid intestinal evacuations are dangerous.

Loss of the senses; cold extremities; a very quick, weak, scarcely perceptible pulse; are generally fatal symptoms.

This disease is often fatal at sea, and the life of the scorbutic patient is generally terminated by it or scorbutic hydrothorax; but it would be seldom fatal, if a proper anti-scorbutic diet were carried to sea for the scorbutic seamen.

The diagnosis of this disease is often intricate and difficult, although it is only necessary to possess characteristic

knowledge sufficient to distinguish scorbutic from idiopathic dysentery: yet this distinction is of the utmost importance, for the active antiphlogistic and mercurial practice recommended in the latter, is not only very opposite to the proper practice to be adopted in the former, but would almost certainly endanger the patient, and possibly might destroy him.

I have observed scorbutic dysentery to be induced at sea, after a seaman has subsisted only one fortnight on his sea diet, but, most commonly, one month will have elapsed after seamen have been placed on sea diet in a tropical country, before the disease begins to prevail: hence, after the expiration of a month at sea, every case of dysentery may be suspected to be of the scorbutic kind, and the most attentive examination should be daily made, to detect those symptoms, which are characteristic of scorbutic diathesis; for if any such exist, the nature of the disease at once becomes evident.

The gums, in general, are earlier affected with well known and unequivocal marks of scurvy, than the other parts of the body; probably, because they are perpetually subject to injuries on their upper edges in masticating the hard biscuit, and are exposed to the action and absorption of the muriat of soda contained in the salted meat, which is left interposed between the teeth and resting on the gums after eating; hence, the gums should be always inspected, and next to them, the cicatrices of wounds or ulcers, and those parts of the cellular texture, which, at no distant period, have suffered contusion or injury, or have been discoloured by extravasation. The saline smell of the cutaneous excretions may be attended to.

When no unequivocal symptom of scurvy is present, and distinctly marked, we must attend to the following diagnostics.

Scorbutic dysentery is generally preceded by bad health, loss of appetite for sea diet, impaired digestion, some degree of weakness and emaciation, and is often induced without exposure to cold. Simple dysentery is induced from checked perspiration, and its other remote causes, when the body is and has been in full health and vigor, without the slightest sign of impending disease.

In many instances of scorbutic dysentery, the patient will have previously sustained an idiopathic attack, and in this case, it may be observed, on comparison, that the mode of accession is more gradual, its progress milder, and its nature and general character somewhat different from the former attack.

Scorbutic dysentery is necessarily preceded by a diet of salted meat, or a diet devoid of ample nutrition; while simple dysentery is not.

In scorbutic dysentery, the constipation is seldom obstinate on its first induction, the evacuations are frequently mixed with fæces, and it is often preceded by diarrhœa: simple dysentery is seldom preceded by diarrhœa, but, in general the bowels are obstinately constipated at its induction, and the stools are very seldom mixed with fæces until some purgative operates.

Mild aperients, and small doses of cathartics, will generally produce fæcal evacuations in scorbutic dysentery:

while large and repeated doses of active cathartics are generally necessary in the idiopathic.

In scorbutic dysentery the stools are often mixed with black clots of blood: in simple dysentery, the blood is generally liquid, and of a light venous color.

Scorbutic dysentery is very seldom accompanied by fever; but, on the contrary, the skin is generally cool, and shews marks of languor and debility in the action of the subcutaneous vessels. Simple dysentery is often attended with increased temperature of the skin, and increased action of the subcutaneous vessels, and the inflammatory variety is attended with fever.

In scorbutic dysentery, the face looks pale and often of a slight livid hue, and appears thin and sickly: while on the induction of simple dysentery, it bears the marks of full health, and is equally florid and plump. Moreover, there is a particular appearance in the countenance of a scorbutic person, which cannot be intelligibly described, but which the eye of experience recognizes as a something, expressive of dejection, softness, and apprehension, and indicative of debility.

In scorbutic dysentery, the appetite for fresh diet and fruit is, wholly or in a great measure, retained in the early stages of disease: in simple dysentery, the appetite for all manner of food is wholly lost on its first induction.

The acid of limes and lemons often suddenly cures scorbutic dysentery, or at least suppresses the dysenteric discharges for an uncertain time; in simple dysentery, it has no such effect.

In scorbutic dysentery, if submurias hydrargyri be exhibited, a small quantity speedily excites ptyalism, and sometimes immoderate swellings of the face and salivary glands, and does not necessarily remove the dysenteric stools: Robert Stevens, August 28th, 1809, was salivated by twelve grains of submurias hydrargyri, and on the 30th he continued to pass mucus and black clots of blood, and the gums displayed unequivocal marks of scurvy. In simple dysentery, large doses of submurias hydrargyri are often continued a considerable time, before ptyalism is produced, except in constitutions very readily susceptible of mercurial irritation, and the induction of ptyalism is very generally followed by a cessation of dysenteric stools.

Notwithstanding the diagnostics enumerated will enable us, solely, or by aggregation, to detect the generality of obscure cases of this disese; yet, a very extensive experience leads me to the candid confession, that I have not found them infallible guides; but this disappointment excited cautious suspicion, which has always prevented any serious error. Something, therefore, must be left to the acuteness, the discrimination, and the judgement of the practitioner, in the treatment of cases of dysentery, at sea; and something will be due also to his caution; but more will depend upon his attentive consideration of concurring circumstances. When unequivocal symptoms of scurvy, however, are combined with symptoms of dysentery, the treatment must be adapted to the manifest nature of the disease.

It is pleasant to know, that obscure cases of this disease are not fraught with danger, and will allow time for the development of its true character, and to rectify any errors

committed in the treatment; for the dangerous consequences of improper treatment are proportioned to the bad state of scorbutic symptoms.

OF THE TREATMENT.

The treatment of this disease must be regulated by the situation of the patient, and naturally resolves itself into two parts.—First, where he continues to live on sea diet; and secondly, where a diet of fresh animal and vegetable food is procured.

As long as the patient continues at sea, and cannot be there supplied with a proper diet of fresh animal and vegetable food, a permanent cure is very uncertain; and the remedies employed are too often only palliative in their effects, or only serve to check or suspend the fatal progress of the disease, for the space of two, three, or four weeks, until a proper diet can be obtained; but even these advantages should be gratefully estimated. In some happy constitutions, however, where idiosyncrasy probably aids in resisting the powerful influence of scorbutic diathesis, a cure has been effected at sea under many disadvantages of diet.

The indications of cure are few and simple:—1st. To correct and remove the scorbutic diathesis, and to obviate the effects of its action on the intestines.—2d. To increase or diminish the peristaltic motion of the intestines, as diarrhœa or constipation happen to prevail.—3d. To palliate or cure particular symptoms that may arise, and become distressing in the progress of the disease or of the treatment.—And 4th, To restore the functions of the stomach and intestines in particular, and the strength in general.

The first indication we may attempt to fulfil, *at sea*, by abstaining from all salted meats; by the exhibition of citric acid;* and by substituting other articles of diet for those which contain sea-salt.

The second indication may be fulfilled, by prescribing aperients to increase, and anodynes and absorbents to diminish, the action of the intestines.

The third must be fulfilled, by adapting the particular remedies, hereafter mentioned, to particular symptoms.

The fourth may be fulfilled, by nutritive diet, adapted to the increasing powers of the digestive organs; by bitters and decoctum cinchonæ; good air; a temperate life, and avoiding all irregularities and excesses of every description.

Thus, at *sea*, when a patient presents himself for cure, the nature of the evacuations should be minutely examined. If they be not mixed with natural fæces, cathartics are necessary, but we are to be mindful, that the mild and gentle purgatives will stimulate the intestines to due evacuations; *e. g.* ℞. Pulveris rhei ʒss. succi limonis ʒij—ʒiv; vel olei ricini ʒvj. cum suc. limonis; or, senna and manna may be used with lime juice, and after any of these have fully operated, the citric acid and an anodyne should be exhibited: as ℞. Succi limonis ʒiv. statim sumendas cum opii grano

* Citric acid, whether sucked from the fresh lemon or lime, or taken as preserved in bottles, or exhibited in the concrete or crystallized form, has been found to cure and prevent scurvy, if administered in sufficient quantities, provided a moderately nutritive diet can be simultaneously used.

uno, and to be repeated every six or twelve hours, as may be found necessary. If natural fæces be mixed with the dysenteric discharges in such quantities, as to preclude the suspicion, or the possibility of a retention of fæces; but, more especially, if the dysenteric symptoms be combined with diarrhœa; then, without premising a purgative, the treatment should be begun by the following formula:—℞. Suc. limonis ℥iv. statim sumendas cum opii grano uno, et repetantur bis die, vel sæpius si occasio fuerit. If much diarrhœa or tormina prevail, carminatives and aromatics should be combined with the acid and anodyne: or the mist. cretæ, or mist. aluminosa anod. hereafter to be mentioned, may be prescribed at the same time with the lime juice.

It may not be out of place to observe here, that the juice sucked from a fresh lime or lemon, is infinitely more anti-scorbutic in its effects, than the juice long preserved in casks or bottles, and might almost be estimated in the scale of power, as ten to one.

Retention of natural fæces always occasions tormina, tenesmus, and general uneasiness; hence, whenever it is necessary, the mild purgative should be repeated; and, although it is a fact established by experience, that mild purgatives generally clear the bowels, we are by no means to question the propriety of administering strong cathartics, when the mild fail to produce a proper effect; but, in a disease of debility, strong purgatives should not be unnecessarily repeated; and let it be remembered, that the intention is to evacuate the fæces, without exciting the vessels of the villous coat to much increased secretion of intestinal mucus, for such would be an useless and injurious expence of sensorial power, as well as of blood.

In mild cases, it frequently happens, that this simple treatment acts as it were specifically on the intestines, by removing, in one or two days, the dysenteric symptoms; by suppressing the dysenteric discharges; by inducing fæcal regularity of bowels; and even in some instances a permanent cure speedily ensues; but, as lime juice cannot supply the proper nutritive chyme, which should be elaborated from fresh animal and vegetable diet, and which is the only certain curative of scurvy, and restorer of strength and flesh in this disease, if the remote causes continue in force, the cure too often proves temporary; a relapse extinguishes the confident hopes of recovery; the disease makes a gradual progress, (but not without some check and opposition from the continued use of citric acid,) and exhibits various degrees of remission and exacerbation, of exhaustion, debility, and of change of symptoms, until a proper diet be obtained in harbour to ensure recovery, or unpitying and undistinguishing death terminate the struggle. So necessary are *nutritive* antiscorbutics, to aid and support the constitution, in resisting the progressively destructive effects of scorbutic diathesis!

Relapses of less moment are sometimes occasioned by pancakes, peas, or any article of diet that passes through the intestines undigested, and produces local irritation; these relapses are cured by assisting Nature with mild laxatives and demulcents to evacuate the offending substance, and by afterwards soothing the excited irritation with opium and carminatives.

The succus limonis and opium sometimes cure scorbutic dysentery, and divert the action of the scorbutic diathesis from the intestines, even when other accompanying scor-

butic symptoms are progressively increasing; and it is sometimes cured, at sea, in four or five days, when these remedies are aided by a proper diet.

Should the treatment be followed by a recovery from the dysenteric symptoms in a day or two, the citric acid and the best diet obtainable should be continued, until the scorbutic diathesis be removed; and, if they be united with decoctum cinchonæ or infusum quassiæ, they will prove more serviceable, in the convalescent stage, in re-establishing health and vigor. It is also useful to continue an opiate at bed time, for a few nights, after the scorbutic dysentery has been suppressed, although the patient be taking bark and lime juice.

When the patient's strength is reduced by the disease, the decoctum cinchonæ should be administered with the lime juice and opium, in all cases, where it agrees.

When pure blood is passed, the sulphuric acid and decoction of bark will be prescribed with advantage, at intervals between the citric acid and opium, and, indeed, I have sometimes, as in T. Hagerty's case, given them all in combination with the happiest effect. If recent limes be at hand, they may be sucked at convenient opportunities, while the other medicines are taken together.

Should frequent vomiting occur, either at sea or in harbour, an attempt should be made to appease the irritability of the stomach, on the same general principle as is recommended in simple dysentery; instead, however, of the supertartras potassæ, lime juice may be advantageously substituted, and no more of the potion should be drank at once than can be retained. But should the vomiting proceed

from undigested food, Nature should be assisted in rejecting it, by a gentle emetic or infusum anthemidis, as it would excite great disorder in the bowels, if it were permitted to pass into them.

It should be remarked, that, when any case of acute or chronic dysentery becomes changed to the scorbutic form, the existing treatment should be relinquished for that recommended in scorbutic dysentery, as soon as it is discovered, the advantages of which seldom fail to be very conspicuous in a few days.

The diet, at sea, must be necessarily selected from the seaman's daily rations, *(alike in health and disease!!*)* and the surgeon's necessaries: the former consist of salt beef, salt pork, pea or dholl-soup, flour, raisins, or kiss-misses, rice, sugar, biscuit, wine or grog, tea and sugar in the East Indies, cocoa and sugar in the West Indies; the latter of tea, sugar, rice, barley, sago, and lime juice. Lime juice and sugar were not allowed the seamen daily in India, until the loss of 500 men by scurvy in one year, 1806-7, and the joint representations of the surgeons, induced the Admiralty Board to grant them. Many of these articles of diet can be used with propriety. Tea and sugar, cocoa, wine, sherbet, made of lime juice, sugar, and water, are proper and antiscorbutic. If the flour be good, and will admit of being made into well-fermented, light, and well-baked bread, it should be so converted, and flour should be taken in the lieu of beef and pork; but ship-flour in the East seldom admits of the necessary fermentation. Flour may be made into lillapee, but I cannot venture to recom-

* The present enlightened medical commissioners, Drs. Weir and Burnett, of the navy, are alive to this fact, and will remedy it whenever the sailor's prejudices will admit of it.

mend, generally, the use of puddings made of flour and raisins or kissmisses, for they generally occasion flatulence, tormina, and diarrhœa, and are often passed in an undigested state. Rice can be boiled to make gruel, and if it be thick and seasoned with sugar and spices, it will be found palateable and nutritive. Rice puddings, with sugar and spices, are proper. Biscuit puddings and biscuit soup with barley, may be made light and palateable, if seasoned with sugar, wine, and spices. Barley, with plumbs or kissmisses, will supply a drink, which is rather antiscorbutic. Sago boiled or made into puddings is nutritive, and mixed with sugar, wine, and spices, is also palateable. Pea or dholl-soup should not be used, as it generally occasions flatulence, tormina, and diarrhœa, and increases the morbid secretions.

It may be asked, why I have not enumerated many articles of diet and drink, which have been found beneficial antiscorbutics at sea, and which are easily cultivated, or easily manufactured on board: to this I would reply, that they are not supplied by the victualling or transport boards, which superintend the victualling of the navy, and have the care of sick and wounded seamen.

Sewens may be made, if the oatmeal were allowed, in the East or West Indies. The early vegetation of paddy, corn, &c. might be raised, if they were supplied. The mustard and other cresses might be raised with facility on watered flannel, and antiscorbutic sallads given to the scorbutic, if the seeds were allowed for the purpose. Pickles would be excellent, if they were allowed; so would "potatoes." Spruce beer or wort might be made, if the materials were allowed for the purpose; and the same remark applies to all the articles recommended by various authors.

The medical commissioners for sick and wounded seamen may be fully acquainted with the virtues of those antiscorbutics, and of the advantages to be derived from their use: their reasons for withholding them may therefore be good, although they are not made known to the surgeons of the navy. I cannot, however, subscribe to the strange arrangement, which withholds from the sick, in the East Indies, the portable soup which is allowed in every other part of the world: for experience has fully convinced me, that this nutritious and pleasant article of diet cannot, in any climate, be more wanted, or be more beneficial in the treatment of the diseases of seamen.

Should any fresh animal or vegetable matter, fruit, preserves, pickles, or any antiscorbutic, be supplied by private benevolence, by fortunate accident, or by the poetically painted liberality of the captain and officers,* it should be received with gratitude, and administered with discrimination: but they are fortuitous supplies, which cannot be depended upon.

Let it now be supposed that the treatment has been ably and humanely conducted at sea, and that the fatal progress of the disease has been, in many cases, arrested, until the ship arrive in harbour. This situation leads us to the consideration of the treatment, when the patient can be supplied with every refreshment and every antiscorbutic, which will enable us to combat the scorbutic diathesis by

* A picture of their liberality and humanity to the sick and wounded has been elegantly drawn by Dr. Trotter in his Medicina Nautica; many copies of it have been taken, and if some copy it not, "it is their poverty and not their will consents," to be without it. I believe the portable soup will be soon allowed.

a proper diet, and also the other symptoms of disease by appropriate medicinal remedies.

When I first arrived in India, and until the year 1810, a small sum of money was supplied to the surgeon, to purchase fruit and vegetables on the ship's arrival in port from a cruize, part of which he could, with the consent of the captain, divert to the purchase of bread, fowls, milk, eggs, and other articles of light diet, for such cases as required them; and this appropriation enabled the surgeon to cure many of his bad cases on board his ship: but a subsequent arrangement of the victualling and sick and wounded boards, placed the disposal of the money for fruit and vegetables in the purser's department, and the sailor reverted to his pound of beef, biscuit, and the usual allowances, which rendered it necessary to send him to the hospital, for the sole purpose of obtaining a proper diet; experience having proved, that the digestive powers, in the bad cases, were too weak to digest and assimilate beef. I have seen it, in J. Derkins's case, and in others, pass undigested, and occasion violent pains through the whole intestinal canal, and diarrhœa. Its effects are sometimes more sudden and violent. In Richard Fenton's case, a dinner of beef-steaks and yams, (seventeen days after he had been placed on a fresh diet, and was recovering,) produced the most alarming symptoms; the stomach became very soon distended; his respiration was rendered difficult; the pulse became small and slow, and the extremities and skin cold. These symptoms were removed by the speedy operation of an emetic, followed by an anodyne.

When the surgeon has the means of purchasing or of obtaining the acid or sub-acid saccharine fruits of the class hesperidæi; as, limes, lemons, pampelmus or shaddock

oranges, pomegranates, guavas, &c. they should be given ad libitum, if they do not disagree, but the parenchymatous substance, which contains the juices of the fruits, should not be swallowed. Leeks, greens, spinage, cauliflowers, cabbages, callalou, sallads, &c. should be supplied, with light soups, and any animal food of easy digestion and assimilation. Soft bread is essentially necessary, especially when the gums are much affected. Milk and eggs, from which bread and a variety of light food may be made, should be procured. The patient's appetite should be consulted and supplied with its cravings, if no subtantial reason forbid. It may be trusted in most cases for a proper selection of both the quality and quantity of the food; but the diet should be rather moderate or abstemious than full at first, and be gradually adapted to the increasing powers of the digestive organs, and the claims of the constitution. A moderate quantity of good wine should also be allowed.

The almost certain and immediate effect of this change of diet will be the excitement of diarrhœa, accompanied with pains of the abdomen, and sensations of exhaustion. The stools will of course continue to be mixed with mucus and blood at first, but the latter will soon disappear with the scorbutic diathesis. The diarrhœa should, if possible, be anticipated and guarded against, and be checked when it is induced, on account of its debilitating effects.

Perhaps the following formulæ may prove as efficacious in the practice of others, as they did in mine; but all preparations of opium with aromatics and absorbents, will be found beneficial; ℞. misturæ cretæ ℥is,* olei menthæ

* It is alleged, that the administration of the cretaceous medicine, during the use of citric-acid, is unscientific and improper, although they be given at distant and distinct intervals. The objection arises

piperitæ ℥j. tincturæ opii ℥ x—ad xxx. ft haustus 6^{is} horis sumendus. ℞. Aluminis g^{r} iij—vj, aquæ menthæ piperitæ ℥iss, tincturæ opii ℥ x.—xv. ft haustus 6^{is} horis sumendus. In mild cases, it will be sufficient to repeat the draught twice a day. I have sometimes substituted half a drachm of the confectio opii for the tincture, and in other cases, attended with langour and griping, I have found an advantage in adding ten grains of the confectio aromatica to each dose. Although I have extended the maximum dose of tinctura opii to thirty drops, yet I very seldom prescribed more than ten or twelve, because they proved very efficacious, and produced the desired effect; while I have seen large doses of opium greatly derange the sensorium and the circulating system, and prove very injurious. The aluminous draught was had recourse to in the China cruize, in

from this circumstance. If chalk be mixed with warm lemon-juice, it forms a citrate of lime, which is insoluble *by water*, thence it is inferred that it is insoluble in the stomach and bowels, and would irritate them by acting as an extraneous body. Now, if it so happened, that the stomach contained no fluid but water as a solvent of its contents, the chemical fact and inference from it might apply; but the stomach secretes its own peculiar solvents or juice, to whose properties water bears no analogy. For instance, the fibres of animal and vegetable food are insoluble in water; and yet are easily dissolved by the gastric juice. In fact, all the solid part of our food is insoluble although diffusible in water, yet it is easily digested, and no one has objected to the use of animal or vegetable food on account of their insolubility in water, nor has any one been so absurd as to set up the solubility of food in water as a test of its digestibility, if I may use the word. The truth is, chalk, the absorbent earths, barks, resins, and many medicines, are insoluble in water, and their use is not objected to on that account. The above formula has never been found to disagree, and the stomach unquestionably possesses the power of disposing of both the chalk and the citric-acid, without injury to any part of the canal. Chalk is given to infants and adults, to neutralize the acid formed in the stomach and bowels, and if any injury arose from a compound formed of acid and lime, surely this practice would be discountenanced. At p. 150, we have recommended the use of chalk on account of its insolubility.

1807, when the creta was expended, and it proved so efficacious, that it was very frequently employed afterwards.

By these means, the disease, in mild cases, is not unfrequently cured in four or five days; in other cases, the diarrhœa continues a considerable time after the dysenteric discharges have ceased; and in a few instances, where the cases have been of long duration, at sea, and of marked severity, the chronic varieties of dysentery succeed to the scorbutic symptoms and character.

When scorbutic dysentery has supervened on other scorbutic varieties of the disease, it has been sometimes cured before the original symptoms, and even sometimes before the scorbutic symptoms that have been successively induced after its appearance. In these cases, the scorbutic symptoms remaining generally yield to a continuance of the fruit and fresh diet. Although the above general plan of treatment very frequently succeed, yet, when the disease has continued a considerable length of time at sea; the digestive functions have been greatly impaired; the patient's strength has been much exhausted; and awful emaciation induced; great caution becomes necessary in the treatment, for some have died from the sudden stimulus or effects of the change of diet, and some from inability to support the little increase of debility brought on by the diarrhœa excited by this change.

Whenever the existing emaciation, debility, and impaired functions lead to a suspicion of so fatal an issue, the more acid fruits should be avoided; the juice of the oranges, shaddocks, or pomegranates, should be sucked, but the cellular or parenchymatous substance, which con-

tains the juice, should not be swallowed. Soft bread and milk should be given in small quantities and often, if the stomach bear the milk well. A little chicken, or fowl, with fowl soup, should be used once a day, with a small quantity of vegetables. Without particularizing further, the most careful selection of diet from the lightest food must be made, and regulated by the surgeon, not according to established rules of dietetic systems, but from its resulting effects. Trials should be made, and if the food agree, let it be continued; and when any change of, or addition to the patient's fare is made, let its effects be attentively watched, and let it be continued or disused as experience shall point out. We may thus gain useful information, and in observing what may be employed, may learn what to avoid and exclude. Arrow root and bread preparations never disagree; milk sometimes does. At the same time, the cretaceous formula already mentioned, should be used to prevent the diarrhœa from becoming profuse, and to check it when induced.

This plan of treatment should be persisted in, until the acquisition of strength and digestive powers enable the patient to venture upon a more generous fare, and then all the articles of diet already enumerated *(page* 278) may be employed under the guidance of the appetite, and of present or former dietetic experience. The cure, however, proceeds slowly in a tropical climate, and these bad cases will occasion many anxious moments for the safety of the patient. As his recovery advances, light decoctions of Peruvian bark, or bitter infusions, will increase the powers of digestion, and promote recovery.

When these cases terminate fatally, the appetite is not restored by the change of food; the diarrhœa continues

without interruption, or is, perhaps, increased, and the emaciation and debility gradually increase until the patient be exhausted. Not to recover strength and flesh, after being placed on fresh diet, is an unfavourable symptom.

It sometimes happens, that the stomach, the whole intestinal canal, and viscera connected with them, are so deranged, and their functions so much suspended, that lientery is produced. It is astonishing to observe how some patients struggle through this state of lientery, and how long it is sometimes protracted. The patient's appetite is tolerable, the light food is swallowed and passes rapidly through the stomach and intestines, the patient feels exhausted after the evacuations, falls into a profound sleep, and awakes much recruited. Such is the daily round of symptoms. If the patient under these circumstances acquire flesh, he will probably recover; if the emaciation increase, he will most probably die. Some hopes may be entertained, that it will terminate favourably, when the scorbutic diathesis is removed, but it must be confessed, that it is too often fatal.

The observance of the diet recommended in bad cases,* with panada of well toasted bread, decoctions of crusts of bread, rather burnt, bread puddings, bread soup, and arrow root, will be eligible, in lientery, and must be varied according to circumstances.

The scorbutic diathesis will be corrected, in time, by the use of fruit, and the change of diet, and should any external extravasations or marks of scurvy be present, this in

* Page 281-2.

tention will be assisted by rubbing the parts with limes or lemons; and when lime juice disagrees, or it is hazardous to try it, in lientery, this is not an inefficacious remedy.

Opium, carminatives, and aromatics, with astringent gums, are particularly necessary and useful in lientery. The cretaceous formula, already mentioned, should be used with the maximum dose of the tincture of opium, and with the addition of tincture of kino or catechu, of a few grains of alum, or of any other intestinal astringent. Confectio opii may be substituted for tincture of opium. The quantity of the tincture may be increased, *if absolutely necessary;* this necessity very rarely exists, and it should be always diminished, if it produce stupor, coma, or any of the unpleasant symptoms of an over-dose of opium. Dr. Wright recommends citric acid saturated with muriate of soda as being almost a specific in lientery, but I have not tried it.

Infusions of quassia, gentian, or columba, and light decoctions of cinchona, simarouba, or cascarilla, with aromatics, may be taken with advantage, once or twice in the forenoon and afternoon, to strengthen the tone of the stomach and bowels. I have tried mercurials in this kind of lientery, but I have never seen the excitement of ptyalism followed by a permanent cure. In W. Shallnot's case, free ptyalism could hardly be said to afford a temporary relief, and was followed by dropsical swellings, which, with gradual emaciation and weakness, were superadded to his lienteric complaints and occasioned death. Blisters to the abdomen may stimulate the digestive organs, by sympathy, and increase their energy.—Frictions of mildly stimulating liniments, with the addition of opium, as lin: ammoniæ vel camphoræ, and flannel worn round the abdomen, may be

useful, and never do harm: but, I must confess, that I have never seen them strikingly beneficial. Anodyne enemas are occasionally used with advantage, when there is much want of sleep, or irritability of the intestinal canal.

In all cases, when the patient is in a fair way of recovery, the bowels are apt to become irregular, and he should be treated according to the symptoms, and a consideration of former disease. Copious diarrhœa should be stopped; but we should not be too anxious to check it, when it is slight, for constipation produces greater evils. Nevertheless, it is sometimes useful, in preventing relapses, to continue an opiate at bed-time, for a few nights after the cure of scorbutic dysentery, when effected in a short time, if it do not produce costiveness. It sometimes happens, that the patient's bowels are only deranged and purged at two, three, four, or five o'clock in the morning: in these cases, this morbid habit is to be broken down by an anodyne draught taken half an hour or an hour before the usual period of recurrence, as this anticipation soon cures the complaint.

In a state of convalescence, light bitters or decoctum cinchonæ with the mineral acids assist recovery. The symptoms of severe tormina and tenesmus may be palliated at any period of the disease, by fomentations and anodyne enemas. Constipation is seldom induced, as the fresh diet disposes to a laxity of bowels and diarrhœa; should it occur, let it be obviated by a mild purgative. Strangury, &c. should be relieved by the same remedies as are recommended in simple dysentery. Peculiar irritability of the stomach and vomiting should be palliated by arrow-root, barley water, gruel, or congee, mixed with lime juice, and taken by mouthsful, or in such quantities only as the stomach has

the power of retaining, however small they may be.—*See page* 133, *et seq: on Tropical Dysentery.*

It may be again remarked, that the secretion of bile is often suspended in this disease, as is inferred from the white, blue, or black color, and clayey nature, of the stools; the suspension probably takes place from defective nutrition and the absence of the stimulus of animal food: it is most commonly restored, when the fresh diet is again used; for then the stomach and lacteals recover their functions; the general torpor of the circulation is soon removed, and with it the torpor and inaction of the portal circle: and the extremity of the ductus communis choledochus is again exposed to, and influenced by, its natural stimulus. If the secretion of the liver be not restored, after the scorbutic diathesis has been quite corrected, or is fast receding, it may be excited by fomentations to the right hypochondriac region, by occasional blisters in some cases, and three grains of submurias hydrargyri exhibited every morning, or on alternate days. I have found small mercurial frictions to the abdomen, until ptyalism be slightly excited, useful in the same circumstances of disease, after the scorbutic diathesis has been sometime corrected; from which also I inferred, that the continuance of the chronic stage depended upon hepatic derangement. During the use of the submurias hydrargyri, or unguentum hydrargyri fortius, the diarrhœa should be checked by the use of the cretaceous or aluminous mixture, with opium, (ut antea præscripta) and when it has ceased, decoctum cinchonæ aut infusa amara should be prescribed.—*Vide the table.*

It might be expected, that scorbutic dysentery would frequently terminate in the varieties of chronic dysentery

A, B, C, D, but more especially in that depending upon an ulcerated state of the bowels, and most commonly of ulcerations of the cicatrices of those formerly induced by an attack of idiopathic dysentery; and that they would be more difficult of cure, than ulcerations from simple dysentery, in the same ratio, that old ulcers are longer healing than recent ones. It must, however, be observed, that these conclusions are by no means supported by experience, for the constitution, and the local vessels of a scorbutic ulcer, are often seen to assume an unusual energy and vigor of action, and heal internal and external scorbutic sores in the most rapid manner, after a change of diet; and we conclude, that intestinal ulcerations are thus healed, as the cases seldom become chronic. This energy, communicated to the constitution by a change of diet, as readily overcomes the other forms of chronic cases, with the exception of those of lientery, and suspended secretion of bile already mentioned. I have never seen but one (Anthony Leach's) case of the chronic variety B, and it was soon cured by the decoctum cinchonæ and sulphuric acid. The cases of lientery are probably connected with the variety D, but I have not seen this variety in its simple state. Should any cases of chronic dysentery ensue, after the scorbutic diathesis is done away, they must be treated precisely the same, as if they were consecutive to simple dysentery. It should be remarked in conclusion, that seamen are very liable to relapses, when exposed to the influence of the remote causes; and for this reason, all patients who have been afflicted with this disease, should be left on shore at the hospitals if the ship be soon ordered to sea, unless a proper diet can be obtained on board their ship, until the disease be cured, and the disposition to it be eradicated by a long continuance of fresh diet. In case of a repetition of attacks, they should be sent to Europe.

The medical treatment in the last column of the Table is what was instituted with fresh diet, and continued until perfect regularity of bowels and healthy fæces were restored; after which, decoctum cinchonæ or inf. amara were given. The previous treatment at sea, consisted of combinations of lime-juice, with opium, carminatives, and aromatics; or decoctum cinchonæ. In some of the cases in the table, the decoctum cinchonæ with lime-juice and opium was continued, no necessity having existed for a change, as the symptoms indicated a speedy recovery. In the China cruize, I could not adopt the treatment recommended at sea, (*vide page* 275 *et seq.*) for want of sufficient lime-juice, and I prescribed the mist: alum: anod: in most cases, and gave the small quantity of one or two ounces of lime-juice daily by itself.*

The most remarkable fact in the table, is the disparity in the number of deaths, in the years 1807 and 1809; eleven having died out of twenty-six in the former, and only one out of twenty in the latter year, which is to be accounted for by the following circumstances:—In 1807, lime-juice was not always in India for daily issue at sea to the ship's company, and the quantity in my charge did not admit of more than two or three ounces to be given to the worst cases daily. I had not a stock of pickles or vegetables, or any other antiscorbutics, to give a temporary check to its progress; the people were longer affected with it from the longer duration of the cruize; they had not the advantage of obtaining refreshments from such an Island as Roderique; and several died of the disease at sea.

* The Belliqueux sailed from Prince of Wales's Island on this voyage and cruize, where, in 1807, no lime-juice was supplied to the ship.

A TABLE,

Exemplifying several Circumstances of the Disease.

Face page 288.

MEN'S NAMES.	When affected with unequivocal Scorbutic Dysentery.	When placed on Fresh Diet.	When Cured.	When sent to the Hospital, Died, or how disposed of.	What Previous Disease.	Medical Treatment, Exclusive of Fruit and proper Fresh Diet.
	1809:	1809:	1809:			
Richard Barry	July 23	Sept. 10	- -	To the Hospital Sep. 21st, & cured	Simple Dysentery from June 20th	Decoctum cinchonæ and opium.
John Fleming	August 3	— 10	- -	Died Sept. 12th	Dysentery in June, but cured June 28	Mist: cretæ anod: 6ta horis.—*Præscr: page* 279.
James Baxter	July 23	— 10	Oct. 5	- - - -	- - - -	Mist: cretæ anod: bis die, and after the 22d of Sep. capt hydr: submur: gr iij omni mane, to stimulate the liver, but not to salivate.
William Wild	August 5	— 10	Sept. 22	- - - -	- - - -	Dec: cinchonæ and opium.
John Magennis	July 23	— 10	Oct. 29	- - - -	Simple dysentery, June 5th	Mist: cretæ anod: and after the 28th, calomel with the same views as in Baxter's case.
Tim. Hagerty	August 14	— 10	- -	To the Hospital Sep. 21, & cured	Scurvy	Mist: cretæ anod.
Samuel Chambers	— 29	— 10	Sept. 18	- - - -	- - - -	Eadem.
Joseph Carden	— 20	— 10	Oct. 12	- - - -	- - - -	Eadem.
James Ryan	— 14	— 10	Sept. 20	- - - -	Scurvy	Dec: cinchonæ, suc: limon: rec: et opium.
David Hutchins	— 21	— 10	— 12	- - - -	Scorbutic ulcers	Mist: cretæ anod.
James Moore	— 23	— 10	Oct. 9	- - - -	Scorbutic gums & extravastions	Mistura cretæ anodin.
Thomas Bromley	— 25	— 10	— 14	- - - -	- - - -	Eadem bis die. Submur: hydrar: ut supra on Sept. 19, and continued to Oct. 5, without an intention of salivating.
William Kirk	— 28	— 10	— 4	- - - -	- - - -	Mist: cret: anod: bis die. Submur hydrargyri from Sept. 16, but cured without ptyalism.
Henry Jacobs	— 29	— 10	Sept. 24	- - - -	- - - -	Dec: cinch: cum suc: limon: rec: and opium continued.
William Jackson	— 28	— 10	— 28	- - - -	- - - -	Mist: cret: anod: bis die.
Robt. M'Mullen	Sept. 1	— 10	— 30	- - - -	Scorbutic sores	Mist: cret: anod: Cal: gr iij, Sep. 9, but cured without producing ptyalism.
John Williams	— 4	— 10	Oct. 4	- - - -	- - - -	Mist: cretæ anod: bis die.
Thomas Wright	— 7	— 10	Sept. 14	- - - -	- - - -	Mist: cretæ anod: 6ta horis.
William Parker	— 8	— 10	— 13	- - - -	- - - -	Mist: cretæ anod: bis die.
James Yarwood	July 23	— 10	— 27	- - - -	Bilious fever on June 5th	Mist: cretæ anod: bis die, &c.
1807:	1807:	1807:				
William Wilkes	Sept. 1	Oct. 2	Oct. 23	- - - -	Simple & chronic dysentery, from June 13, to Sep. 1	Mistura aluminosa anod:—*See page* 280.
John Longwell	August 12	— 2	— 7	- - - -	- - - -	Eadem bis die.
Michael Flynn	— 23	— 2	- -	To the Hospital Oct. 3d, & died	- - - -	Eadem 6ta horis.
John Ashworth	— 23	— 2	Nov. 23	- - - -	Dyspepsia	Eadem 6ta horis—Hydr: submurias gr iij, omni mane from Oct. 13th, which caused profuse ptyalism, on Oct. 19th.
John Carr	Sept. 23	— 2	- -	To the Hospital, Oct. 3d, & died	Scorbutic ulcers from Aug. 22d	Mist: alum: anod: 6ta horis.
James Dunnegan	August 3	— 2	- -	To the Hospital Oct. 3d, & died	- - - -	Eadem 6ta horis.
George Parsons	Sept. 23	— 2	- -	To the Hospital Oct. 3d, & died	Scorbutic ulcers	Eadem.
Martin Clark	August 17	— 2	- -	Oct. 11th, & cured	- - - -	Eadem.
John Winne	— 18	— 2	- -	Oct. 9th, & died	- - - -	Eadem 6ta horis, but lientery was induced and proved fatal.
George Jennison	Sept. 15	— 2	- -	Died Oct. 3d	- - - -	Mist: alum: anod: 6ta horis.
John Manning	— 13	— 2	- -	Sent to Hospital Oct. 3d, & died	- - - -	Eadem 6ta horis.
Peter Grubb	— 4	— 2	- -	Do - Do	Scorbutic dropsy	Eadem 6ta horis.
Terence Mood	— 29	— 2	- -	Died Oct. 3d	Scorbutic hydrothorax.	Mist: alum: anod: 6ta horis.
William Yates	August 30	— 2	- -	To the Hospital Oct. 3d. & died	Chronic dysentery from June 3d	Eadem 6ta horis.
William Shallnot	Sept. 24	— 2	- -	To the Hospital Nov. 7, & died	- - - -	Eadem 6ta horis—Submur: hydrargyri gr iij omni mane, from Oct. 8, which caused profuse ptyalism, on Oct. 21st, but the lientery continued.
John Whitlow	August 11	— 2	Nov. 1	- - - -	- - - -	Mist: alum: anod:—Hydr: submur: gr iij, Oct. 9, which caused ptyalism Oct. 19.
John Rees	Sept. 12	— 2	Oct. 14	- - - -	Scorbutic ulcers, July	Mist: alum: anod: bis die.
John Clayton	— 11	— 2	— 20	- - - -	- - - -	Eadem.
Terence Derkins	— 13	— 2	Nov. 17	- - - -	Scorbutic dropsy	Eadem bis die. Hydrargyri submur: gr iij—from Oct. 19th, but was cured without ptyalism.
Richard Fenton	— 20	— 2	— 17	- - - -	- - - -	Mist: alum: anod: bis die—hydr: submur: from Oct. 6th to 31, but cured without exciting ptyalism.
Anthony Leach	— 20	— 2	Oct. 20	- - - -	- - - -	Decoct: cinchonæ cum opio.
Thos. Calloway	— 17	— 2	- -	To the Hospital Nov. 7th	Scorbutic ulcer, August 20th	Mist: alum: anod: 6ta horis.—Hydrargyri submur: gr iij omni mane, from Oct. 19th, but was cured without exciting ptyalism
Nics. Fitzakerly	— 30	— 2	— 7	- - - -	- - - -	Mist: alum: anod: bis die.
Ebenezer Carter	— 30	— 2	— 11	- - - -	- - - -	Eadem.
Bonnel Stewart	— 28	— 2	— 5	- - - -	- - - -	Eadem.
James Philips	— 28	— 2	— 8	- - - -	- - - -	Eadem.

In 1809, one ounce of lime-juice was daily issued, by the purser, to all the men, and my public supplies furnished as much as it was neeessary to give the siek; I had a considerable quantity of piekled and dry onions for the voyage; fowls for the worst eases about forty days; fresh fish, in abundanee; and some fruits were obtained during our stay at the island of Roderique; the voyage was much shorter; and from the resistanee made by the above antiseorbuties to the progress of the eomplaint, not one died, at sea, solely of this disease, (although George Cooper died of a eombination of seorbutie mortifieation and dysentery,) and their eases were not so bad at our arrival at Point de Galle, on the Island of Ceylon. During every cruize and voyage undertaken subsequent to 1807, a temporary cheek was given to the progress of seorbutie dysentery, by the stock of antiseorbutics and fowls provided for sea-use, and the patients generally recovered.

I may be permitted to draw a few inferenees from the table. Few, who have been affected with scorbutie dysentery, six weeks at sea, reeover, if the surgeon have not some good antiseorbuties to resist and eheek the progress of its symptoms. Under the same circumstances, few reeover, who have been affeeted with seurvy at sea six or eight weeks, if seorbutie dysentery be superindueed within the last four weeks. Most eases of seorbutic dysentery can be eured without calomel; but when the seorbutie symptoms are removed, or are rapidly yielding to the use of fruit and fresh diet, if it appear from the nature of the fæces, that the hepatic seeretion is suspended or beeome morbid, as in Whitlow's, Ashworth's, Bromley's, and other cases in the table, then three grains may be daily, or on every other day prescribed with the happiest effect, in combination with

other useful remedies. In these cases, however, the induction of ptyalism is not always necessary to procure a favorable result, but when it has been induced, it has most commonly been followed by a rapid recovery. It did not succeed in the lienteric cases. The ten grains or scruple doses of calomel are wholly inadmissible, as even three grains a day produce salivation in a very short time. The disease is generally *cured* in one, two, or three weeks, after the proper diet is supplied: should it continue longer, after scurvy is corrected, it must be considered chronic and treated agreeably to the chronic variety it belongs to. Hepatic derangement has proved, in my practice, the principal cause of its chronic duration.

Since writing the above, I have met with the following note in Dr. Johnson's valuable "Essay on the Influence "of Tropical Climates, page 214," first edition, which induces me to add a few cases in support of the observations I have made respecting the use and effects of mercury, to counteract such weighty authority. "Although a scor- "butic diathesis must be unfavorable to the exhibition of "mercury, yet an unreasonable dread of this medicine has "gone abroad in such cases. To my knowledge, mercury "has been pushed the length of ptyalism, for the cure of "dysentery, where the hams were contracted, the ancles "livid, and the gums spongy with scurvy; and no bad "consequences ensued. Mr. Thomson, in the Lancaster, "off the Isle of France, October, 1801, witnessed this in "many instances. In fever or *dysentery*, I should not "hesitate to use mercury, combined with opium, regard- "less of a scorbutic taint."

CASE I.

At Sea, August 25th, 1809.—James Yarwood, æt. 25, was rapidly recovering from a bilious fever induced on the 5th of July, 1809, for the cure of which he had taken a large quantity of hydrargyri submurias, without ptyalism having been excited. On the 25th of August, during his convalescence, he was attacked with a severe purging and griping, for which he took a cathartic in the morning, and an anodyne draught in the evening. 26th. He has had twelve evacuations last night, attended with much tormina; they were now inspected, and appeared to consist of undigested food and fæces—℞. Mist. cret. anod. ʒiss 6ᵗᵉ horis, and as I thought it highly probable, that the bowel complaint might be connected with hepatic derangement, from the circumstances of his having complained much of pain of the right hypochondre during the fever, and of his not having been salivated by the mercury employed, I ordered him three grains of hydrarg. submur. twice a day. 27th. He had ten or twelve stools last night, attended with tormina, which consist of mucus and serum, and are not copious —℞. Hydrargyri submur. gr. iij. ipecacuanhæ, pulveris gr. ij. ol. menth. pip. gᵗᵃ j. saponis q. s. ut fiat pilula 6ᵗᵉ horis sumenda. Horâ sexta P. M. He has had eighteen stools to-day, consisting of mucus—Cont. pilula et capᵗ haust. cathart. salin. 28th. He has had fifteen mucous stools last night, attended with tormina and tenesmus, but not one of a natural fæcal appearance.—Rep. haust. cath. omni horâ donec operavit.—Continuatur pilula. The physic operated copiously after five doses, and he took an anodyne at bed time. 29th. He had thirteen mucous stools last night, with tormina and tenesmus, and is much reduced, but he has not had any fever or inflammatory symptoms from the first.—Rep. pilula et infricatur ung. hydrarg. fort. ʒj. abdomini bis die.—Horâ sextâ P.M. As scorbutic dysentery was prevalent, and the case obstinately resisted the effects of mercury, I examined him strictly, and, although he had hardly tasted salted meats during the voyage, detected a spongy and scorbutic state of the gums—℞. Mist. cretæ anod. ʒiss 6ᵗᵉ horis, et capᵗ succi limonis ʒiv. bis die. 30th. He

has had two fæcal and only eight mucous stools last night, and is easier; the gums more evidently scorbutic. Omit. unguentum hydrargyri fortius et pilula ex hydrarg. submur. et continuantur mistura et succus limonis bis die. 31st. He has had five mucous and five fæcal stools last night, and feels better; he is not so much purged in the day time.—Rep. med. Sept. 1st. He has had three natural, and four mucous stools last night; the tormina abates; is better—Rep. med. 2nd. He has had one fæcal stool and four of mucus last night—Rep. med. 3d. He had four natural stools and not one of mucus last night—Rep. med. 4th. The scurvy recedes, and the general health is improving; he has had too stools yesterday, and three last night, chiefly fæcal—Rep. med. 5th. He had only three stools last night, all natural—Rep. med. 6th. The same—Rep. med. 7th. Was purged four times last night, and has some marks of scurvy still.—Rep. med. 8th. Is much the same—Rep. med. 9th. Is improving fast; bowels more regular and easy—Rep. med. 10th. To-day we obtained fowls and fruit from Point-de-Galle, which were given him; the bowels are easy, but were purged three times last night.—Rep. mist. cret. anod.—The fresh lime was substituted for the lime-juice. 11th. The bowels are regular.—Rep. diæta et fructus, et cap' dec. cinchonæ ℥ij. ter die. et opii gr. j. horâ somni, si occasio fuerit. 14th. Has no complaint but weakness—Rep. med. On the 20th, his bowels continued regular, the appetite was good, he acquired streng'h fast, and all medicine was relinquished. On the 27th he returned to duty.

It may be justly inferred from this case, that mercury did no good, and was at all events unnecessary, if it be not clearly evident that it did negative injury, by being employed instead of the proper remedies. The mercury produced no apparent good effect, while the lime-juice and mixture were strikingly beneficial in five days. Yarwood's natural insusceptibility to the ptyalitic action of mercury, which had been evinced during the bilious fever, probably prevented the speedy induction of ptyalism by the calomel, which took place in the following case.

CASE II.

At Sea, August 23d, 1809.—Robert Stevens, æt. 24, complains of frequent scanty stools of mucus, attended with tormina and tenesmus; he is affected with night-blindness; the countenance is languid, and of a dusky hue without any gloss.—℞. Hydrargyri submur. gr. vj, st. sum. cum haust. cath. sal. et appl^r empl. lyttæ singulo tempori.—Hora 6^a^ vespere. The physic has not operated—Rep. haust. cath. statim, et magnesiæ sulph. ℥ss. omni horâ, donec operaverit. 24th. The purgative has operated well during the night, but he has had two mucous stools since; the griping abates —℞. Hydrargyri submur. gr. iij. ipecacuanhæ pulveris gr. ij. sapon. q. s. ut fiat pilula bis die sumenda. 25th. He has had seven purging stools last night, without any admixture of mucus; he can see a little at night—Rep. pulv. ipecac. co. ʒss. aq. menth. pip. ℥iss. ft haustus mane sum. and as he had only two stools in the course of the day, rep. haustus vespere. 26th. He had several mucous stools last night, with tormina and tenesmus—Rep. pilula merc. ut supra, bis die. In the evening I ordered him four ounces of lime-juice, as the prevalence of scurvy, the peculiar dusky hue of the face, and his general languor, induced me to suspect a scorbutic taint. 27th. The mercury has induced ptyalism; he has had three natural stools last night, and is tolerably easy; the patient's sight at night is imperfect, but he can sometimes see—Rep. emplastra lyttæ, et rep. p. ipecac. co. ʒss. bis die, cum suc. limonis ℥iv. 28th. Is much the same; I consider the early induction of ptyalism as an obscure mark of scurvy—Rep. med. 29th. He has had two stools last night mixed with mucus and blood; the bowels are easy, the gums to-day appear spongy and scorbutic; he is thin and weak, and looks spiritless.—℞. Decocti cinchonæ ℥ij. sextis horis sumendas; cap. suc. limon. ℥iv. bis die, et pil. ex opii gr. j. horâ somni, si occasio fuerit. 30th. Is much the same, but he had not any occasion to take the opiate, as the fæcal evacuations were neither too copious nor very frequent—Rep. med. 31st. The bowels are regular, and the stools are mixed with very little mucus and blood; the night-blindness is removed; the ptyalism has ceased

—Rep. med. and, as the bowels were purged a little to-day, capiat opii gr. j. horâ somni. Sept. 1st. He recovers his general health—Rep. med. 2d. The bowels are quite regular, his sight good, and he recovers his general health. The medicines were continued a few days, until all scorbutic symptoms were quite removed.

This case, and the last prove, that no "unreasonable dread" need be entertained of using mercury in obscure cases of scorbutic dysentery, yet the practice, in which it is excluded, is to be preferred as soon as the real nature of the disease is evident.

CASE III.

At Sea, August 28th, 1809. Francis Weaver, æt. 35, complains of pains of the stomach and bowels; he has frequent scanty stools of mucus and blood, attended with tenesmus and tormina; the gums are very scorbutic, being black, spongy, and disposed to hæmorrhage; the countenance is of a dusky hue, and he has scorbutic extravasations on the extremities: cap^{t} haust. aper. mane, et haustum anod. cum suc. limon. ℥iv. vespere. 29th. He has had five mucous stools, and three fæcal ones since yesterday evening; the bowels are uneasy, the gums the same; rep. suc. limon. ℥iv. bis die, et cap^{t} mist. cret. anod. ℥iss. mane. Sago for dinner, with sugar, lime-juice, and spices. Hora 6^{a} vespere, he has had two evacuations to-day, which were fæcal; rep. haustus. 30th. The bowels are easy, and loose, the stools are fæcal; rep. med. Hora 6^{a} P.M. He has had no stool to-day; rep. med. 31st. The bowels are regular and easy; but the gums are scorbutic, and he is affected with dyspnœa, that is increased on going up a ladder, or on making any muscular exertions, which appears to indicate a disposition to the fatal scorbutic hydrothorax. The opium was omitted, and he was given three large fresh limes to suck in the course of the day, which had been reserved for the worst cases. September 1st. The dyspnœa continues, with cough and pain of the breast, the gums are less spongy and heal. rep. med. et pil. opii, horâ somni, pro tusse. Sept. 2d. Is much the same; rep. med. 3d. Is much better in all respects, bowels regular; rep. med. 4th. Continues to reco-

ver from the dyspnœa, and scorbutic symptoms; rep. med. 5th, 6th, 7th. He continues to recover slowly from the scorbutic symptoms, but he is weak and thin, from want of a proper nutritive diet; rep. med. sine pilula opii, as the cough has ceased. On the 8th and 9th he continued to improve. On the 10th, he was supplied with the acid fruits, and a light fresh diet, and had no further occasion for medicines.

This detailed case, many in the Table, and indeed almost all that occurred in my practice, were cured without any preparation of mercury, which fully evinces, that the use of mercury is generally unnecessary in the treatment of scorbutic dysentery, although its salutiferous effects are justly commended in idiopathic dysentery.

I shall subjoin the case on which the treatment I recommend was founded.

CASE IV.

At Sea, Dec. 23d, 1805.—Duncan Ferguson, æt. 24, has been purged some days; he has had bilious vomitings this morning, and has passed two stools consisting of coagulated blood; is griped much; and he has the scurvy in the gums, thighs, and legs. ℞. Olei ricini, et aq. menth. pip. āā ʒj. M ut ft haustus statim sum. cum hydrargyri submur. gr. iv. et vespere, capiat pulv. ipecac. co. ℈ss. olei menthæ pip. ♏ j. 6^{is} horis. 24th. He is still purged and griped, the stools consist sometimes of blood, mucus, and serum, and sometimes of fæces; the tormina diminishes; rep. olei ricini ʒvj. mane, et vespere, rep^{r} pulvis 6^{is} horis. Capiat etiam succi limonis ʒiv. I ventured to administer the lime juice, because I thought that I could soon obviate any bad effect produced on the intestines; and the bad scorbutic state of the gums, the scorbutic blotches on the extremities, and the contracted hams, seemed to render it absolutely necessary, but I certainly entertained an apprehension that the bowel complaint would be increased by the acid; this fear, much to my satisfaction, proved groundless, and this fact may be numbered among the many in medical experience,

which prove, that we should not implicitly trust to reasoning à priori. Dec. 25th. The stools consist of coagulated blood, and sometimes fæces, but are not so frequent; the scurvy increases in the gums; cap^t succi limonis ℥iv. bis die, cum opii gr. j. Dec. 26th. He has had some dysenteric stools last night; rep. med. mane. In the course of the day, the dysenteric stools became more frequent, and attended with tormina; ℞. Pulv. rhei ℈j. ol. menth. pip. g^tt j. suc. limon. ℥iij. vespere sumend. 27th. He has had some fæcal stools in the night and is easy; rep. suc. limon. et opium, ut antea. 28th. The stools are perfectly natural, but the external symptoms of scurvy are bad; rep. med. 29th. The stools are not frequent, but consist of a mixture of fæces and dysenteric discharges, he has also vomited some blood and thin mucus, he says; rep. med. 30th. Since last night, he has had two evacuations of hardened fæces, mixed with mucus and blood; rep. suc. limon. cum pulv. rhei ℈ss. mane. 31st. The bowels are purged; stools fæcal; the gums are much affected with scurvy; rep. suc. limon. et opium. January 1st, 1807. The Belliqueux anchored in Malacca Roads to-day, and supplies of fruit, vegetables, and beef, were obtained for the men; the scorbutic symptoms are checked; the bowels are merely in a lax state, he is however weak and emaciated; rep. med. 2d. The bowels are regular and he is better; he was put on a fresh diet, and used fresh limes instead of lime-juice. 3d. Is costive, and has pain of the bowels, the scurvy recedes; capt. pulv. rhei ℥ss. mane, et pul. ipec. co. ℈ss. cum aq. menth. pip. vespere; rep. dieta et fructus. 4th, 5th. The bowels are regular, the scorbutic symptoms were gradually removed, and he had no further necessity for medicine, except on the 9th, when he was purged and griped, and took an anodyne aromatic draught. He was sent to duty on the 16th, free from complaint.

This was the first case of scorbutic dysentery that occurred in my practice. William Yates's, that occurred in the same voyage, was the second, and as the simple treatment was very fortunate, and no unpleasant symptom ensued from the action of the acid on the intestines, it was adopted as an established practice, and was generally fol-

lowed by success. Subsequent experience has convinced me, that mercurial purges are unnecessary, and was a practice engrafted from the treatment of simple dysentery.

It may be expected, that I should adduce cases to prove, that mercury is injurious as well as unnecessary; but it can hardly be supposed by any one, that I should deviate from the simple practice my experience had so early found to be efficacious, to make trials of a drug, that was reputed highly improper to be given in any species of scurvy;* more especially when it became proved by further experience, that, in the very obscure cases in which mercury was employed, as if the case had been one of simple dysentery, it was always relinquished, and the practice I have recommended substituted with advantage, as soon as symptoms of scurvy were discovered. In the course, however, of John Winne's and Michael Flynn's cases of scorbutic dysentery, *(see the Table)* considerable swelling supervened in the hepatic region, with pain, and some difficulty of respiration, for which I prescribed three grains of hydrargyri submurias and one of opium, every six hours, until ptyalism was induced. It relieved the hepatic affections, but Winne's face became œdematous, and the head swelled and painful, from the stimulus of the mercury. The scorbutic dysentery did not cease in either case; but scorbutic dropsy was superadded to it, and they both died. I cannot positively prove, that the exhibition of mercury either accelerated or retarded the fatal crisis, for I verily believe, that these two patients must have died (as did the others in the

* Kramer, physician to the imperial armies in Hungary from 1720-30, has recorded that of 400 men labouring under genuine scurvy, treated by one of the surgeons with mercury until it excited salivation, agreeably to the doctrines of Boerhaave, not one survived.

China cruize) from absolute want of proper sustenance during the long period we were at sea; but this I must repeat, *that mercury displayed no beneficial effect on scorbutic dysentery; for the cure of which it is unnecessary to prescribe it, until the scorbutic symptoms be removed, or are fast receding, and those circumstances arise, which indicate the propriety of its exhibition.* Indeed Dr. Johnson does not state, that any advantage was derived from the excitement of ptyalism, but that "no bad consequences ensued."

DE MORBO CHYLOPOIETICO,

OR

OF THE TORPOR OF THE DIGESTIVE AND SECRETORY FUNCTIONS OF THE DIGESTIVE ORGANS.

The disease, of which a description will follow, is thus denominated, because all the viscera, whose functions are directed to the digestion and chylification of the food, to the election of its nutritive parts, and to the transmission of the non-elected or residuum through the intestinal canal, are impaired in their respective offices, and some of their actions (as of secretion) are suspended for an indefinite period. It appeared also to be a disease, which has not been hitherto described by any author, who has treated of the diseases of the East Indies or the Tropics, and which has not been mentioned in any system of nosology; therefore, from necessity, as well as from its importance, it required that a distinct and significant name should be assigned to it. If, however, this disease has been noticed by any one, I must avow, that I have never had the good fortune to meet with its description in the course of my attendance on the public medical lectures of different professors, or in the course of my private studies and reading.

His Majesty's ship Belliqueux had lain at anchor at Prince of Wales's Island, on the coast of Malaya, in

lat. 5° 22′ N. and long. 100° 22′ E. during the hot season, about six weeks, when the disease began to prevail. It was one year after our arrival in the East Indies, and for several months it was as prevalent as any Asiatic or tropical complaint, and it continued to be a disease sufficiently common until we left the eastern tropics; for it prevailed in the China seas, and on all the coasts and seas of Asia. I have seen three cases of this disease since my return to Europe, in persons of advanced age, and it bears a loose resemblance to a particular species of diarrhœa affecting old age.

The characteristic symptoms of this disease are great indigestion, loss of appetite, a torpid liver and suspended secretion of bile, diarrhœa, in which the stools, more frequent than natural, chiefly consist of undigested food, and are of various colors differing from the yellow natural color; defective nutrition producing debility, paleness and emaciation.

It will be necessary, however, to notice the symptoms and effects of this disease upon the various chylopoietic viscera in particular, and upon the different systems of vessels and constitution generally, that its pathology may be well understood, and the indications of cure deduced from reason and sound medical principles.

Previously to the accession and formation of this disease, it happens in many cases, that either the stomach, or liver, or intestines have been subjected to increased or inordinate action, as will be explained in the sequel. Thus, the stomach will, in many instances, have been stimulated to inordinate action by potations of ardent spirits to excess, by

which the appetite and digestive functions have been gradually impaired. Or it may have been excited, by the regurgitation of bile into it, to frequent vomitings and nausea, that have been maintained for a series of days or even weeks. The stomach may also have suffered from sympathy with the lower intestines lately affected with dysentery.

A few days before this compound disease is fully formed, the stomach is sometimes affected with sickness, nausea, and a vomiting of some acid fluid or undigested food, and these symptoms will recur at any time, in the course of the disease, if the patient take any food particularly offensive or disagreeable to the weak stomach. The appetite becomes defective, and the powers of digestion become totally or partially suspended, but the stomach retains the power of transmitting its contents into the duodenum, whether digested or not. The tongue, in some degree, loses its taste, it is sometimes white, sometimes yellow at its root, but most commonly it is moist, clean and red. The stomach is affected with various pains from the uneasy irritation of undigested food, from heartburn or acidities, and most frequently from flatulence. Sympathetic pains at these periods are often experienced at the top of the left shoulder, on the left side of the neck, and in various parts of the chest and back. Pain is felt in the stomach more or less every day, but is severely increased, as often as it is subject to the stimulus of food, which it has not power to digest or pass through the pylorus, or is distended with gas.

The intestines may have been previously affected by dysentery or bilious diarrhœa, and their functions deranged

by those diseases. But when the disease is fully formed, the intestines are always affected with diarrhœa, flatulence and pain. The evacuations vary much in their number, quality and quantity. The ordinary number of stools, in 24 hours, is from four to ten, they are sometimes as frequent as twenty-four in a day, but seldom fewer than four. When they are numerous, they are generally scanty; when few, more copious. Their quality and color admit of great variety; they are sometimes fluid and of a dull whitish color; at other times of a light muddy color; of a color, consistence and tenacity like pipe clay; of a light or dark blue color; of a black color; or of any of these appearances mixed in different proportions; although, generally speaking, they are of the same color but of different shades. They are of different consistence, sometimes approximating to the tenacity of hard fæces; sometimes as fluid as barley-water, and like a mixture of oatmeal and water, and often there is a little lumpy matter first evacuated, like pipe-clay in all respects, followed by loose stools. These evacuations are sometimes mixed with mucus, streaks of light-green and frothy bile, serum, streaks and small coagula of blood; a transparent mucus like jelly, but most commonly and constantly with undigested food. The stools do not emit the fæcal odour; animal food, unchanged in form, is sometimes evacuated in a putrefying state.

Of animal food, I have seen beef and pork, both fresh and salted, mutton, duck and fowl evacuated from the bowels, but little changed either in appearance or form. Of vegetables, pomkin, onions, leeks, yam, peas, sometimes rice, and even biscuit, I have observed unaltered in the stools. Of fruits, raisins and kissmisses, currants, pine-apple, and the parenchyma of other fruits, as well as

fruits that have been contained in pies or puddings, have been transmitted through the intestinal canal unchanged by the solvents and mixtures, by which the food is generally subject to be acted upon. Those articles of food, which have excited the greatest irritation in their passage through the stomach and bowels, and have, in consequence, occasioned the greatest pain, flatulence, and frequency of intestinal evacuations, are the fruits and the four different varieties of animal food first enumerated. The meat of fowls seldom irritates much, unless it be tough or badly cooked.

After some duration of the disease, the abdomen collapses, and, instead of the umbilical region projecting as in health, it forms a slight curve inwards from the sternum to the pubes, as in other cases of great emaciation.

The intestines and muscles associated in the office of expelling the fæces are frequently excited to tenesmus by the irritation of the passing undigested food and unnatural secretions, which also occasion tormina. Pains are occasionally experienced in particular portions of the intestines, when the ingesta pass through them, but the most severe tormina is felt when an error of diet has been committed, and the bowels are subjected to the stimulus of undigested pieces of food. Fæcal evacuations are, however, made without tormina or tenesmus when the diet is bland, and when the patient is recovering, these symptoms are no longer troublesome.

In some instances, this disease has been preceded by some derangement of the hepatic functions, and the liver has suffered from an increased or a diminished secretion of bile. When the disease is established, the patient seldom

complains that he experiences pain or any sensation in the right hypochondre, indicative of a morbid state of the hepatic structure or of a deranged condition of the hepatic functions; yet, on inspecting the evacuations, a negative proof of the secretion of bile being impaired, diminished, or suspended, is offered, from the absence of those changes and effects on the egesta, which bile is known to produce, and which are observable in the fæces, for instead of their being of the deep yellow brown color, resembling wetted rhubarb, they are of the different diversities of color already enumerated. Dissection sometimes discloses a cause of deficient secretion fully adequate to account for it:—for after death, it has appeared on opening the body, that a great part of the liver, and even in rare instances, nearly the whole has been absorbed, so that, in fact, its perfect secretory function could not be continued. Thus, after the function of this viscus has ceased, Nature appears to have considered it as a foreign body, and to have set about its removal by absorption, as it does the cellular and other textures of a paralytic limb or any other part whose functions have ceased. In a case shewn me by my former assistant Mr. W. Watson, he noted down, and sent me the appearances on dissection, and however singular they may appear, I shall transcribe them. "Liver shrunk to a hard "knotty roundish mass not one quarter of the natural size, "contained wholly in the right hypochondrium and occu- "pying even a small proportion of that. Gall bladder half "full of bile, of the consistence of treacle. Biliary ducts "apparently sound, without a trace of obstruction or cal- "culous concretion." The office of the pancreas is so little understood and its pathology so little known, that I can only venture to suggest, that its secretion is impaired in common with the other viscera of the abdomen.

The pulse soon becomes small and weak; the face pale; the countenance expressive of dejection; the lips and gums pale or palish; the surface of the body becomes pale, and is deficient in natural temperature. The skin sometimes becomes wrinkled, dry and rough to the touch. In one instance, the patient was subject to profuse sweats. Although the skin be generally deficient in warmth, yet when the constitution sympathises with the stomach during the excitement of indigestion, pyrexia arises and increased heat of skin is temporarily induced.

As the lacteals cannot supply a sufficiency of chyle adequate to the due nutrition of the body, in consequence of the process of chylification being imperfect, the lymphatics become more active, and absorb all the fat or animal oil contained in the cellular texture, so that the body becomes emaciated and the strength of the voluntary muscles much impaired and diminished. I have also seen the tongue lessened so much in size, that its surface was plaited or furrowed, or (as it is expressed in the note-book at the time) shrivelled. It has been already remarked, that the tongue is generally of a red healthy color.

The mesenteric glands sometimes become tumid, and their enlargement may be ascertained by pressing on the parietes of the abdomen, rendered unusually thin in this disease.

Œdema of the lower extremities sometimes occurs.

The mind participates of the weakness of the body, and is filled with apprehension and despondence, so that the

stoutest heart will sometimes shed a tear over the contemplation of their wretched malady.

In taking a review of the symptoms of this disease, it is plain, that three of the most important organs of the body are implicated, and the fact, that, on reflection, strikes us as the most remarkable, is, that the function of secretion is impaired or suspended in all the digestive viscera. Thus it will be deduced as a fact from negative proofs to be hereafter offered, that the secretions of the liver, stomach and intestines subservient to *healthy* digestion and chylification are partially or wholly suspended, and that the latter scarcely perform more than an office of conducting the ingesta through them. From the dependence which all parts of the system are placed, in relation to the supplies they must derive from the due performance of digestion and chylification, it will not be difficult to comprehend how they must become injuriously affected by the torpor of the digestive organs, and the consequent defective nutrition.

It appears to be a fact as well established as any in physiology, that the fluid secreted by the vessels of the stomach of animals, called gastric juice possesses the particular property of dissolving or digesting the food received into it, and as long as it continues healthy, will always produce the same effect. It is proved too by the experiments of Dr. Stevens, that both animal and vegetable food will be dissolved by the gastric juice alone, when in metal tubes in the stomach, where, it is evident, it could not be subject to the operation of muscular power; and Spallanzani and others have ascertained that the gastric fluid will digest the food, even out of the body; hence, it is inferred, that the muscular power of the stomach is not, of necessity, necessary

or instrumental to digestion, although it may conduce to it by adjusting the food in its proper situation in the stomach, and exposing it to the action of the gastric juice. It of course, serves to transmit it to the duodenum. The principal cause, then, if not the sole one of the ingesta passing through the whole intestinal canal unchanged by digestion, must be the deficiency or the total suspension of the secretion of healthy gastric juice.

When the digestive functions are healthy, the quantity of gastric juice, in all probability, varies according to the exigencies of nature and the quantity of food contained in the stomach, and when the appetite is bad and digestion imperfect, the quantity is probably diminished, and the secretion may cease, when the digestion does not go on. It is also probable, that, in this disease, the quality of the secretions may differ from the healthy one, but those changes have not been ascertained, and cannot be insisted upon as matter of fact.

If it be admitted that the principal functional derangement of the stomach proceeds from a deficiency and morbid state of the gastric secretion, the other phenomena are easily explained. As the food does not undergo the process of digestion and animalization, it becomes liable to chemical fermentation in a situation and temperature well calculated to promote it, agreeably to the laws of nature such substances would observe out of the body.—Hence it is that flatulence is so troublesome, and excites so much pain both in the stomach and bowels.* Pain is also excited by

* The theory of chemical fermentation has been adopted to explain the phenomenon of flatulence in this disease, because it seemed plausi-

the stimulus of undigested food irritating the nerves of the stomach by its presence. Sickness arises from any ingesta irritating in a disagreeable manner, the nerves or villous coat of the stomach. It has not appeared that vegetable food in this disease has run into the process of fermentation in the stomach and intestines so much as animal food; for in most cases of great flatulence and pain of the stomach, attended with vomiting, the contents which have been rejected, have, on examination, proved to be animal food, and particularly those parts of it which are fat or contained in tough cellular texture, or whose fibrous texture

ble in consequence of so much of the ingesta passing undigested; yet I am fully convinced that the evolution of air in the stomach does not always arise from the gasses given out by chemical fermentation, and cannot be accounted for on that principle. R. W. B. is very subject to dyspepsia and flatulence of the stomach, and on one occasion, when suffering from these complaints, in which his mind was satisfied he had not committed an error of diet, although the extrication of air in the stomach, was rapidly evolved in extraordinary quantities, he took a purgative early in the morning, fasting, which, from a peculiar idiosyncrasy of habit, entirely cleared the bowels in less than an hour; the air in the stomach continuing to be generated, he then, still fasting, took an emetic, which operated freely and was assisted in its operation with water that had been boiled and could not ferment; nothing solid was rejected from the stomach, and the fluid thrown up appeared to be only water mixed with a little mucus like saliva, and although repeated vomiting was excited, nothing else was rejected, but what has been stated. The facts most worthy of remark and notice, are, that between the intervals of vomiting much air was accumulated in the stomach and came off with its fluid contents, and after the vomiting had ceased, air was still generated, or formed in the stomach, until it became much distended and distressingly painful. This extrication of gas was checked by eating breakfast, and the stimulus of brandy drank with the tea. It would seem allowable to infer from the above experiment, that the stomach has the faculty of secreting or generating gas in a more rapid manner than fermentation, and shews that no great dependance can be placed upon any explanation of animal processes, or of phenomena arising in animal organs, by the laws and results of chemical action

has been firm and hard, and difficultly separated; it has also sometimes smelt sour, as if undergoing the acetous fermentation. From what has been observed in this paragraph, it is probable, the vegetable food in this complaint is more easily digested than animal.

The function of the muscular coat of the stomach appears to be the least diminished, as by it the contents of the stomach are still transmitted, and it probably loses a portion only of its force, in a common ratio with all the muscles of the body.

The pathology of the intestinal affections in this disease is, also, tolerably clear. It has been seen that the stomach does not digest the food; hence the ingesta are propelled in a crude state through the intestines, and in this state become an unnatural stimulus to their nerves, induces pain and a quicker peristaltic motion, and occasions the evacuations to be frequent. The chemical fermentation commenced in the stomach is, perhaps, not much interrupted, and the air evolved produces also flatulence and pain. The frequency of the dejections will vary and depend upon the degree of irritation excited by their contents on the muscular coat of the intestines; an inference which seems to admit of proof, for if the patient be limited to a diet of mild farinaceous and demulcent vegetables, the peristaltic motion is less rapid, and the number of dejections will not exceed four or six in twenty-four hours, but if from the folly or error of the patient, the diet has consisted of animal food in substance, dried fruits or any article of diet, which by the idiosyncrasy of the patient, or condition of the stomach, is, at the time, indigestible, or difficult of digestion, the evacuations will be almost incessantly renewed

until the irritating substances be discharged. In some few instances, at some period of the complaint, the state of diarrhœa has almost amounted to lientery, and an irritation excited in the stomach by warm ingesta, has, by sympathy, been very soon propagated through the whole canal, and occasioned stools, but this occurs also in common diarrhœa. The secretions of mucus, serum, and the discharge of blood, occasionally observed in the motions, appears to depend upon an excessive stimulus being applied to some particular portion of the canal at the time, for they are never continued as in dysentery, but are incidental effects. If the secretions of the large intestines contribute to the production of the peculiar odour of the fæces, as is generally admitted, I apprehend, they must be suspended, or their quality altered, but as it does not admit of positive proof, I shall content myself at present with the bare suggestion of such a circumstance to account for the absence of that odour, and shall have occasion to allude to this subject again.

Physiologists, in general, believe and admit as a fact, that the bile is the fluid which solely or in conjunction with the secretions of the large intestines, uniformly impart the color of yellow or brown to human fæces, when it is secreted in a healthy condition, and its colouring property is not traversed by the patient using preparations of steel, or any other colouring matter for food, which alter their natural and general appearance. This yellow color is induced as soon as the contents of the small intestines pass into the large,* and the longer they are retained, the darker is the brown

* Abernethy on the Constitutional Origin of Local Diseases. Loco Citato.

they assume, and the more volatile they become, so that it is certain that the fæces acquire their form, color and peculiar odour in the large intestines. It is a fact also well established by every one's experience, that the fæces are white and not yellow when the passage of the bile to the duodenum is obstructed by the interposition of biliary calculi, or the canal of the ductus communis choledochus is obliterated by adhesive inflammation or permanent stricture, as dissection has disclosed to me in three cases of jaundice.

In all increased secretions of bile, or when more than usual is absorbed in consequence of the obstruction or obliteration of the ductus communis choledochus, at a time that hepatic secretion still goes on, the skin soon becomes yellow, or the patient may be jaundiced. The skin sometimes becomes yellowish from a residence within the tropics, and it is presumed this color may be produced by the habitually increased secretion and absorption of bile induced by the climate, and as in this disease the skin is pale, another inference is deduced in favor of the cessation of secretion of bile, as its presence is neither indicated in the fæces nor in the skin.

From these premises and negative proofs, it may be very fairly deduced, that no bile, or, at all events, no healthy bile is secreted, when the skin is pale, and the evacuated fæces are not brown or yellow, but exhibit for a continuance the colors enumerated at page 302, and it is hence assumed, that the healthy secretory function of the liver is suspended.

It is highly probable, that, by some process or stimulus

unknown to us, the bile conduces an essential something, or in an essential manner to the volatile odour of the fæces, as well as the secretions of the large intestines, for whilst the hepatic secretion is suspended, they are deprived of that odour, and as soon as it is regained, even in a small quantity, (for I have observed it mixed only in streaks) that property is restored.

When the body is in health, and preserves its *embonpoint*, it is believed, that the lacteals and lymphatics supply as much to the sanguiferous system, as it expends in the different secretions and excretions; hence, when the body becomes thin and emaciated, a negative proof is offered, that the lacteals have supplied but little chyle, and that the lymphatics have been employed in taking up supplies from the cellular texture of the body. From some cause, however, the lymphatics do not always take up or transmit all the fluid from the lower extremities—hence œdema.

As the sanguiferous system does not obtain its usual supplies of chyle and lymph for sanguification, the blood becomes deficient in quantity, and perhaps altered in quality, and the heart and arteries are not duly stimulated or distended; the heart and arteries probably lose a portion of their muscular force too, so that from these causes, the circulation is not carried on with healthful activity and energy in the extreme vessels, and on the surface of the body, from whence proceed paleness of the lips, gums and skin generally, and the diminution of the natural temperature of the skin, especially on the extremities. It is also probable, that the muscular coat of the absorbent vessels of the lower extremities loses a proportion of its force, and is less

able to overcome the mechanical resistance the perpendicular weight of their contained fluids offers, for whilst the patient is up and the body erect, the absorbents do not transmit all the returnable fluid, and œdema is produced, but when he lays in bed with the feet and legs a little raised, the œdema is removed.

The degree of loss of muscular strength in those systems of vessels, may be in the same ratio, as in all the moving powers of the body, for almost all the functions depending on muscular force are weakened and impaired.

The remote causes of this disease have appeared to me to be the debilitating influence of a hot climate on an European constitution; the intemperate use of intoxicating liquors; a bad diet; too much fasting; dysentery; functional hepatic derangment. An attempt to trace the connexion between these remote causes and proximate effects, must lead to a wide field of speculation, that would not always prove satisfactory or conclusive, besides, there is some difficulty in the execution, for the disease will take its origin or date its commencement from causes occasioning disorder of either of the chylopoictic viscera, or of any two of them. The necessity for entering on theoretical grounds has been in some measure anticipated, for in the section of predisposition to dysentery, I have endeavoured at some length to point out the extensive association of irritative actions and direct and reverse sympathies that exist between the skin and the stomach, many instances of which may be also found in physiological writers, and I have there traced various causes which concur in weakening the digestive organs either directly or sympathetically. From which I have inferred that, soon after the

European arrives in the tropics, the powers of digestion act with diminished energy, whilst the subcutaneous vessels continue to act with increased vigor, and a reverse sympathy becomes established for a time between the secretions of the skin and those of the stomach and intestines. But after this disease has extended its debilitating effects to the circulating system, the subcutaneous capillaries as well as those engaged in the gastric and intestinal secretions become torpid and inactive, and appear to be influenced by direct sympathy.

The immoderate use of intoxicating liquors has great effect in producing an impaired and vitiated state of the digestive organs, not only by stimulating the vessels of the stomach, but by exciting, from sympathy, inordinate action of the heart and arteries and excessive exhalations from the capillaries of the skin, all of which terminate in great exhaustion of the sensorial power, and if habitually repeated, must lead to loss of appetite, innutrition, and general derangement.

The intemperate ingurgitation of spirits, &c. frequently effect a morbid alteration on the membranous surfaces on which they act, which is manifested in the bad taste of the mouth, the fetor of the breath, and the sickness and loss of appetite after an intemperate debauch. However it may be explained, the fact is, that inebriates are the most subject to this universal torpor of the digestive organs. After intoxication too, the bowels are often affected with bilious diarrhœa, or an increased secretion of bile of indefinite duration, which are sometimes followed by torpor of the liver.

From these causes, and their effects on the function of

secretion and nutrition it is probable, the gastric juice is gradually altered and diminished, until it become unequal to the purpose of digestion, or its secretion may be entirely suspended, hence this alteration in the quantity and property of the gastric juice, and some loss of power in the muscular coat of the stomach may be regarded the proximate cause of its disease.

The induction of this disease may, sometimes, be fairly attributed to unavoidable hard and low diet, and defective nutrition, in which case, the gastric secretion may be rendered torpid, or be suspended from the want of the accustomed stimulus to the stomach, and the other organs may soon suffer from the same natural cause, or from sympathy. When this disease succeeds an attack of dysentery, it may be produced by the sympathy of the other viscera with the state of the bowels, or the cause above mentioned, as the abstinence from animal food must be often observed for a long period.

The derangement of the stomach is frequently the first link in this chain of disease, and the other organs become affected by association or more evident causes, and yet, although this may be the case to a great degree, there is some reason to believe that there is some pre-existing state of the liver and intestines, which readily disposes them to be morbidly affected, for they are often soon affected after the stomach becomes deranged, which is not the case in ordinary dyspepsia, at all events, not in the degree they are in this disease. Besides derangement of the liver or intestines often forms the first link of this disease, as has been observed.

The immediate cause of diarrhœa, is the stimulus of un-

digested food on the nerves of the intestines, exciting their muscular coat to a quicker peristaltic motion, and, after a time, established habit and an altered secretion of intestinal mucus, may have some share in maintaining it.

The immediate cause of the suspended secretion of bile, is a temporary paralysis (if I may use the term) of the secreting vessels of the liver. Thus, excessive stimulation, by intemperate habits, may terminate in a state of torpor or inaction. The absence of the usual stimulus of well digested and prepared chyme, which in health, prepares the biliary ducts to discharge their contents, and the secreting vessels of the liver to form more bile by the association of their motions with their excretory ducts, may be another cause of torpor. The liver, then, is not only deprived of its natural and usual stimulus to secretion, by the impaired state of the powers of digestion, but, in all probability, in most stages of this disease, the blood is in such a diminished and altered state from being deprived of its usual supplies of chyle, that it is unfit for the purposes of duly stimulating the secretory vessels, and producing healthy secretions of the digestive organs.

From the diseased state of the chylopoietic viscera, it becomes impossible for them to form healthy chyle in sufficient quantities for the due nutrition of the body, and it is probable that the process of chylification is, in some fatal instances, very imperfect. The mouths of the lacteals are said to be endued with animal appetence, by which they can select and take up chyle, but, as in some stages of this disease, it is probable that, but little is formed, they may take up other parts of the intestinal contents, which may prove an unnatural stimulus to the mesenteric glands, and

produce swelling and slow inflammation;—at least, I cannot offer any other explanation of the cause of the occasional diseased state of those glands.

This disease can be distinguished from others, to which it bears any analogy, by closely observing its symptoms, and inspecting the nature of the intestinal evacuations, and perhaps can only be confounded with obstinate diarrhœa, or lientery. From the former, it may be known by the food being digested, and by the presence of bile in the evacuations of common diarrhœa. In lientery* the food passes in half an hour or sooner, or at all events, it has passed in a very short period of time in the lamentable and commonly fatal cases of lientery I have seen. In this disease, it seldom passes in less than twelve hours, in the most irritable states of the intestines. In lientery, this rapid passage of the ingesta through the intestinal canal, is a constant symptom in all stages of the complaint, soon after eating; in the disease under consideration, the evacuations are not generally or necessarily induced immediately after a meal.

The duration of this complaint is very uncertain, and generally continues for some weeks or months.

This disease is sometimes fatal, in which event the patient becomes gradually exhausted as in atrophia. The appetite totally fails, the frequent motions continue, as well as the diminished or suspended secretion of bile; the body becomes emaciated to the greatest possible degree; inability of sleeping ensues; the intellects are often impaired; the

* Lienteria. Celeris statim a pastu facta ingestorum vix mutatorum, dejectio.—*Sauvages. Sp.* 256.

vision becomes very indistinct, about two days before death; the pulse becomes very quick; the skin gradually becomes cold, and the actions of the heart and of respiration become irregular and interrupted, and at length cease. It is not surprizing that this deplorable disease should sometimes terminate in death, it should rather excite our astonishment, that it is not an invariable issue. But the conservative powers of life are constantly occupied in preserving it and releasing it from disease, and recovery is not in most instances to be despaired of, however obstinate the disease has proved, or emaciated the patient may appear. Sleep is a great restorer in this disease, often have I seen the great exhaustion induced by a sudden succession of painful motions, recruited by a reanimating sleep; and hence inability to sleep may be regarded as a most dangerous symptom.

Many cases that have been rendered almost hopeless for a want of a proper diet, have afterwards slowly regained their health, when such a diet has been obtained; and several relapses have occurred among seamen, when they were placed on a sea-diet before the digestive organs had recovered the power of assimilating their salted provisions.

The earliest demonstration of recovery is indicated by the evacuations, for when it has begun, they will no longer display a semifluid and varied mixture of secretions and undigested food, but a homogeneous mass, which is commonly white, and, in course of time, becomes tenacious like clay, and finally assumes the form of indurated fæces. Thus it would appear, from the absence of undigested food in the stools, that the stomach first regains its digestive functions, and prepares a chyme for chylification, and the lacteals re-assume their absorbent appetence, and supply

the blood with new matter and secretion, and the patient's general health begins to improve.

The liver then commences its secretion, but its action, at first, is very irregular and imperfect, and the secretion small in quantity, and not of the established healthy quality; thus streaks of green frothy bile are often observed in the evacuations, and is a mark of a speedy return of healthy hepatic secretion, and the appearance of these streaks precede a more copious and proper action. The hepatic secretion is sometimes alternately performed and suspended for a short time, as if the healthy action was difficultly acquired, and the liver had to learn its office again, or perhaps the portal circle may receive for circulation and secretion, more blood one day than another, and thus the evacuations vary in color; at length, however, the hepatic secretion is regularly established, as well as a healthy action in all the functions of the digestive organs, and health is restored. Although this is the usual mode and gradation by which the viscera recover their functions, yet, if the patient commits an error in diet at any time, the stomach and intestines are instantly deranged and affected with indigestion and diarrhœa, but the secretion of bile continues.

It should be remarked, that appetite and digestion are often restored to the stomach, the healthy secretions to the liver, considerable absorption to the lacteals, strength and flesh to the muscles, and some fat to other parts of the body, before the intestinal evacuations are of natural consistence and frequency. In such cases, the diarrhœa generally assumes a particular modification; for although the stools are more frequent and liquid than in health, yet they

are not copious, and the whole quantity discharged in the space of twenty-four hours, scarcely exceeds what would be evacuated at one free regular sitting in health, and the frequent evacuations do not induce debility, and are no great impediment to the restitution of strength.

The return of the visceral functions soon brings in their train, the happy companions of placid sleep, animation, cheerfulness of mind, healthy pulse and corporeal energy.

From the mode and tenor of recovery which have been described, the indications of cure may be deduced. Thus, it is of first importance to restore the healthy secretions to the torpid viscera, to rouse the digestive organs to action, and re-establish the process of digestion. In the second place, all inordinate actions and painful affections should be palliated; all improper diet avoided, and the general health promoted by every means.

The first indication will be fulfilled by a well regulated course of alterative medicines, in conjunction with those which restore vigor to the stomach and bowels. Many means may be necessary to fulfil the other intentions.

It is a generally received opinion, that mercury, besides affecting the salivary glands, has the property of exciting all the secreting surfaces and vessels, and of promoting an increased action of the absorbent system. It is also generally admitted, that it possesses a power of correcting the morbid condition of the liver superior to any other medicine, and that the preparation denominated hydrargyri submurias has the particular effect, more than any other, of exciting the liver to increased secretion, by stimulating its excretory

ducts.* It will not be denied by those who have had much opportunity of witnessing the effects of small doses of mercury, that they very frequently induce good appetite and digestion, and restore the due secretion of a healthy gastric juice; indeed, I have often witnessed the most craving demand for food succeed the induction of ptyalism, in diseases where appetite had been lost, and the indulgence of it has not been often attended with inconvenience or injury.

Opium has the effect of increasing many of the secretions,† of moderating increased muscular action, and is often necessary to allay pain of the stomach and bowels, and to check diarrhœa by diminishing the sensibility and irritability of the intestines to their unnatural stimuli.

From the torpid circulation going on on the surface of the body, indicated by its paleness, aridity, and deficiency of animal heat; the preparations of ipecacuanha and antimony deserve employment, as they possess the virtue of increasing the action of the capillaries of the skin, and by direct association, may influence the secreting vessels of the stomach and bowels, provided the subcutaneous vessels be so moderately excited as that their action shall not be followed by weakness. Thus temporary indigestion and disorder of the bowels have often been found to cease on perspiration being restored to the surface. Of the two diaphoretics above mentioned, I have generally given the preference to ipecacuanha, because it has the reputation (and I believe most deservedly) of increasing the tone of the

* See p. 123.

† Darwin's Zoonomia. loc. cit. It has also the effect of diminishing others, and promoting absorption.

stomach,* and I have often seen antimonials derange the stomach and digestion. I have also preferred the hydrargyri submurias to the pil. hydrargyri, because the former has, in my experience, shewn greater power in exciting the liver to resume its secretion than the latter.

For the reasons above assigned, I have exhibited those three medicines in all cases of this complaint, apportioning the quantity of each to the susceptibility of the patient's constitution to the action of either medicine, and I have always continued them with less frequency or in diminished doses, until the functions of the different viscera were quite restored. It has been my practice to give calomel thus combined in sufficient quantities to excite *slight* ptyalism, if the disease did not yield without it, which I have afterwards endeavoured to maintain, for a longer or shorter period, (regulating the time of duration by its evidently good effects on the disease,) by giving diminished doses of calomel, and if ptyalism were not maintained by it, I have nevertheless thought the hepatic system was thus kept subject to its influence.

I do not approve of exciting copious salivation for very obvious reasons, as the constitution, in so weak a state, might not be able to support itself under so exhausting an excitement, &c. but I have persuaded myself that a slight one has been necessary to satisfy the mind, that the action of the medicine on the secreting vessels of the liver and stomach has been established, and (a better reason) because the effect on the hepatic secretion then became more permanently advantageous.—Besides, a moderately increased action of the salivary glands excited by mercury, does, by

* See Daubentin's little Treatise on Indigestion.

association, generally produce a more energetic and healthy action of the glands that secrete the gastric juice, (with which they have always been connected in health,) and this, more particularly, in hot climates.

Whether the explanation here offered of the effects of mercury in assisting to subdue this disease be satisfactory or not; the medical practitioner may still be assured, he will derive gratification from the exhibition of the remedy by witnessing the healthy changes it produces on the patients; for I have seen some after a recovery, looking as healthy and ruddy as when they first left Europe.

The following formula, including the three medicines mentioned, has been generally employed.

℞. Hydr. submuriatis gr. ij—iij.
Pulv. Ipecacuanhæ gr. ij.
Opii purif. gr. ss. ad gr. j. ft pil. omni nocte sum.

The dose of calomel may appear rather larger than is usually given as an alterative, but in this disease of general torpor, and within the tropics, the constitution is not readily susceptible of mercurial action, and where former experience of its use has proved the patient's habit to be with difficulty excited, or when some degree of mercurial excitement of the gastric and hepatic secretions, is not induced in a reasonable time, the pill should be given twice a day, and I have known it given oftener with good effect.

The quantity of opium should be varied with the state of diarrhœa and tormina, increasing it when they are troublesome, and omitting it when they are easy and tolerably regular.

After the calomel has excited slight ptyalism, or when it is observed that the viscera are regaining their functions without that effect, the pill should be administered every other day, and when the recovery advances with tolerable certainty, it may be continued twice a week for some time, and finally omitted.

The torpor of the stomach and its vessels of secretion, and the languid circulation may be gently excited by stomachics, aromatics and stimulants, in addition to the above remedies, and the bowels may be relieved by carminatives, and the daily use of a small quantity of a tonic aperient. Thus bitters or dec. cinchonæ (which I generally preferred) with aromatics and cordials, or carminatives, should be prescribed at regular intervals. To these may be added, with advantage, pulv. rhei. gr. v. in the forenoon dose, as it is the only aperient that imparts a little tone to the bowels, whilst it greatly relieves them by more speedily clearing away their undigested contents. Good wine, or brandy and water may be taken medicinally in small quantities, to stimulate the stomach, and to keep up warmth and an action on the surface of the body. A few cases have occurred, where from idiosyncrasy or peculiar weakness of the stomach, the bitters or Peruvian bark could not be made to sit easy on the stomach, and were of course omitted. This occurred when the patient was much reduced, and was regarded as a circumstance replete with danger.

A warm bath may be occasionally used, and daily fomentations to the regions of the liver and stomach are advantageous, as well as an occasional vesicatory to the epigastre, and right hypochondre. The state of diarrhœa,

although a diseased action, appears to be a necessary one in this complaint, as long as the digestive powers are suspended or greatly impaired, nor is it possible to remove it whilst the stomach is deprived of its digestive functions, and any attempts directed to this purpose, have not only failed but excited tormina, by occasioning the retention of irritating contents. Hence I have not been usually solicitous of checking it, and perhaps the best way of moderating it is by observing a proper bland diet, as has been already suggested; yet it must be established as a general rule, to control it, when excessive or evidently injurious, by opium, mist. cretæ, carminatives, aromatics and the astringent gums, and to remove it altogether as soon as other circumstances of advanced recovery render it prudent, by the means just mentioned.

The diseased state of the mesenteric glands is generally cured by the removal of the remote cause and the alterative course of mercury.

It has been observed, that the liver recovers its functions next in succession to the stomach, no doubt from the operation of the mercury, from its association with the stomach, and from the application of its natural stimulus—well digested chyme to its excretory ducts.—If however the secretion continue deficient or suspended, the mercury must be persisted in.—If calomel disagree in any case of this disease, which it has not done in my practice, the pil. hydrarg. may be substituted for it.

Having laid down the general rules of treatment, it is necessary to notice some remedies, that are adapted to the relief of particular symptoms. Flatulence may be palliated

by carminatives, the preparations of ammonia, aromatics and cordials, and may be prevented to a certain degree by avoiding all errors in diet, and selecting those articles which have undergone the process of fermentation, or are the least prone to it in the body.—Sickness, nausea, and slight fever, attended with uncommon flatulence, are sure proofs of an error of diet having been committed, and of the stomach being oppressed with undigested food; in this case, a gentle emetic should be exhibited, or the stomach may be solicited to reject its contents by draughts of chamomile tea or warm water, for if this be not effected, we may be assured, the bowels will be much disordered by the flatus and undigested food passed into them; besides an emetic may rouse the liver to action.

When it is known that the presence of undigested food in the bowels occasions tormina, tenesmus, and frequent evacuations, with constitutional irritation, it is generally proper to clear the bowels of the irritating matter by a mild dose of pulv. rhei, aut ol. ricini, and then allay the excited irritation by an aromatic anodyne draught, repeated at proper intervals if necessary. Anodyne fomentations to the abdomen are beneficial, and if the tenesmus and tormina are at any time severe, an anodyne enema should be injected. If the intestines should suffer great pain from their stimulating contents, without exciting intestinal evacuations, a mild purgative should be first exhibited.

The diet in this disease is entitled to great consideration, more with a view of preventing injurious consequences from an improper one, than from expectation of medical advantages from one that is properly regulated. This remark especially applies to the worst stages of the complaint,

in which the stomach and bowels apparently serve no other purpose in the animal economy, than that of being mere conductors of the ingesta through them; but as soon as the digestive organs have begun to resume their functions, a well regulated diet will not only prevent accidental mischief, that would retard the progress to health, but it will assist generally in the recovery by greatly conducing to the due nutrition of the body. It may be observed that the most natural stimulus for the due excitement of the vessels of the stomach to a healthy secretion of gastric juice, and to the vermicular and other healthy actions which it performs, is that of a moderate portion of thoroughly masticated animal and vegetable food; which, on being digested and passed into the duodenum, becomes the most natural stimulus to the biliary and pancreatic ducts, to propel forward their bile and juice; the chyme, on being mixed with the organic fluids in its transit through the intestines, calls the lacteals into action, stimulates the mucous coat to secretion, and excites the peristaltic motion, by which the exertion of its residuum is at length accomplished. Thus a succession of irritative motions is established by the stimulus of our natural food in health; but in this disease, it too often happens, that neither of these secretions or motions is excitable by the stimulus of nature. Hence it should be remembered, that a great variety of food, which in health, only excites agreeable sensations and healthy actions, here occasions the most distressing tumult, which sometimes menaces the life of the patient with rapid destruction. The necessity for the most careful selection of diet, would soon be impressed upon the physician and his patient, by the unpleasant effects of an unguarded one, if they were not previously aware of it. In the worst stages of the complaint, the diet should consist

of arrow-root, panada, sago, or bread-soup, made palatable and eordial to the patient by the addition of sugar, wine, spiees, or salt, as will be most agreeable to the impaired taste. Milk may be employed in all eases, where it does not disagree. To this may be added a sort of soup panada, made of ehieken or fowl broth and bread, or of "pish-pash" made of fowl soup and riee, and light jellies; but the patient must avoid fat soups or broths, and he should never load the stomach by taking large quantities of food at a time, however innoeent and mild their quality may be.

I cannot help urging the necessity of avoiding all errors of diet in this complaint, not only for the reasons already assigned, but beeause they oeeasion relapses, that deprive the patient of all the advantages he may have gained. For the purpose of avoiding sueh errors, it is reeommended that he should be contented, in the worst stage, with the uniformity of any diet, that he may derive the slightest advantage from, or that even does him no positive injury by its undue exeitement, and he should eonsider every change of diet made, as an experiment, that must be instantly desisted from if it do not sueeeed, until the improvement of health and of the state of the digestive organs is so evident as to justify a ehange without mueh hazard. In the ease of G. Tomkins, the patient persevered in making arrow-root the principal article of subsistenee for more than three months, and finally recovered. When the motions, however frequent, indieate a restoration of the biliary and gastrie seeretions, and of digestion, by presenting a homogeneous yellowish mass, unmixed with undigested food, we may cautiously aseertain the extent to whieh the powers of digestion are restored, by allowing the patient to eat a

little solid animal food, and by being guided by the result. If the experiment be successful, and the solid food is digested, it may, with reason, be concluded that the gastric and hepatic functions are returning, and the addition to the above diet may be continued; and, as health advances, and the stomach becomes more habitually obedient to its natural stimulus, we may venture to vary the diet by allowing the use of all tender and easily digested meats and vegetables, until the recovery is accomplished. Good wine, or brandy and water in great moderation, may throughout constitute a part of the diet.

After the patient has fully recovered, he is still recommended to lead a regular and uniform life; to establish regular habits of eating, drinking and sleeping, and of evacuating the bowels; in so doing, he will of course abstain from all excesses of the bottle, and all luxuries of the table, from too much repletion, from turtle feasts, rich sauces, made dishes, greasy curries, fat meats, and all tough animal food that is not easily masticated; from unfermented pie-crusts and puddings, dried fruit, and every article of food or drink which experience has proved to disagree with him or others who have been similarly situated. With this special observance, he may long enjoy good health.

It may be observed in conclusion, that seamen should not be too soon or unnecessarily placed on their sea-diet, or a relapse, after a time, will ensue; nor should any one indulge in salted meats, who has been affected by this malady; for it has been remarked even by Boerhaave, that sea-diet does not easily undergo digestion, chylification and sanguification. Tum, quæ difficulter in chylum et sanguinem mutantur. Qualia sunt, quæ sale, fumo, aëre indurue-runt. *Aphorism*, 196.

DE GASTRODYNIA A FAME.

The complaint about to be noticed under the above title, is so alarming, and to all appearance so fraught with danger, that I hope to be excused for giving a short sketch of it in this work, as I have only witnessed it within the tropics, and it is even there of very rare occurrence.

The principal symptoms are pain in the epigastric region, extending sometimes to the left hypochondre; the patient generally lays on his back, and complains of a pain under the middle of the sternum, which oppresses him like a heavy weight; the eyes are generally suffused with tears, and look melancholy and indicative of suffering, and at other times there is a wildness expressive of nervous anxiety; to these are added restlessness, sighing, despondence, and apprehension of speedy dissolution. In one instance, where the patient was thin, I could feel the stomach contracted like a ball laying in the epigastrium. The pulse is, in general, slow and languid, and the skin deficient in temperature, which indicate the absence of pyrexia.

In the few cases I have met with, the complaint was induced by fasting too long, so that the stomach became empty, and yet the patients did not express themselves to be affected with the sensation of hunger, nor was the stomach in the least distended with gas, but contracted to its narrowest limits. The sympathetic pain under the sternum is remarkable.

The treatment of this disease has been simple and always successful, but it appears to me the patient would incur great hazard if a proper view of the complaint was not taken, and it were treated by bleeding, and the antiphlogistic means, from a notion that the pains were the result of inflammation. In fact, the exhibition of light food is the principal remedy, beginning with small quantities not exceeding a tea-spoonful at a time, and gradually increasing it until the patient has taken a moderate quantity, which should be frequently repeated. The pains may be also alleviated by fomentation, and the preparations of opium, and if the latter produces constipation, that should be obviated.

The following case will exemplify the symptoms and treatment.

H.M.S. Warrior.—John Cyprian, æt: 26, Waister, at sea, going to Port Royal, June 8th, 1814. Gastrodynia. He felt ill yesterday, and complained of pain of the stomach and head; his tongue was yellow, and indicated an increased secretion of bile to which he was subject: he took a saline cathartic with calomel, and after their operation he was better. This morning he still felt a little pain, and took sulph. magn. ℥ss. Horâ 6ª P. M. The aperient had procured two stools; but he came into the sick berth with his eyes staring wild and swimming in tears; he had a most languid pitiful look, and simply stated himself to be very ill; he was laid on the couch before any enquiries were made; he informed me, he had eaten nothing for three days past, nor to-day; he complained of great pain below the lower part of the sternum in the epigastre, extending to the left hypochondrium; he experienced a pain under the sternum, which he described to be similar to a lump of lead laying in the middle of his chest, so much was he oppressed by it; the pulse was slow and languid, and the skin cool, he was very uneasy and restless, and often sighed deep. From former ex-

perience, I had no hesitation in ascribing these symptoms to an empty stomach, and ordered him some arrow-root and wine directly—utatur fotus parti affect. dolore et capt. aq. menth. pip. ʒiss tr. opii ℳxv. after the arrow-root. He was greatly relieved directly after eating, and the arrow-root and wine was continued to be given warm until the heat was restored to the surface, and he perspired. 9th. He was much better last night, slept tolerably, and perspired; he had some pain, but is greatly relieved to-day. ℞. liq. ammon. ℳxx. inf. quassiæ ʒiss. ft haustus horâ unâ ante prandium et vespere sumendus. Positive directions were given to observe that he eat his victuals. Diet light. 10th. He has had three stools this morning, and has pains across the stomach from flatus. Capt. h. anod. arom. 11th. He is quite easy; bowels regular. Rep. haust. ex inf. quassiæ. The patient felt some dull pains of the chest until the 16th, but still recovered daily, and eat well. Contr. haust. ex inf. quassiæ. On the 18th, he was quite well.

FINIS.

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ERRATA.

Page 107, *for* magnificient, *read* magnificent
140, *for* conseqence, *read* consequence.
161, *for* unconcious, *read* unconscious.
277 *for* from which bread and, *read* from which and bread.
54 and 116, (in the notes) *for* Mr. *read* Dr.
299, *for* or, *read* nor.